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=> d his nofile

     (FILE 'HOME' ENTERED AT 15:38:26 ON 26 MAR 2008)

     FILE 'HCAPLUS' ENTERED AT 15:38:51 ON 26 MAR 2008
L1             1 SEA ABB=ON  PLU=ON  US2006205589/PN
                 SEL RN

     FILE 'REGISTRY' ENTERED AT 15:39:17 ON 26 MAR 2008
L2             4 SEA ABB=ON  PLU=ON  (115383-22-7/BI OR 35978-49-5/BI OR
                 7440-05-3/BI OR 99685-96-8/BI)
                 D SCA
L3         25584 SEA ABB=ON  PLU=ON  FULLERENE?/CNS
L4             2 SEA ABB=ON  PLU=ON  L2 AND L3
L5             1 SEA ABB=ON  PLU=ON  35978-49-5/RN
                 D SCA
L6             1 SEA ABB=ON  PLU=ON  L2 NOT (L4 OR L5)

     FILE 'HCAPLUS' ENTERED AT 15:59:40 ON 26 MAR 2008
L7            14 SEA ABB=ON  PLU=ON  L5
L8         20217 SEA ABB=ON  PLU=ON  L4
L9             1 SEA ABB=ON  PLU=ON  L7 AND L8
L10        37046 SEA ABB=ON  PLU=ON  L6(L)CAT/RL
L11        27913 SEA ABB=ON  PLU=ON  L3
L12        58365 SEA ABB=ON  PLU=ON  (PD OR PALLADIUM)(3A)CATALYST?
L13           71 SEA ABB=ON  PLU=ON  (L10 OR L12) AND L11
L14            1 SEA ABB=ON  PLU=ON  L13 AND L7
                 D KWIC L13 1-2
L15         6548 SEA ABB=ON  PLU=ON  (PRECIPITAT? OR DEPOSIT?)(3A)(PD OR
                 PALLADIUM)
L16            1 SEA ABB=ON  PLU=ON  L13 AND L15
L17              QUE ABB=ON  PLU=ON  NANOPARTICL? OR NANOPARTICULAT? OR
                 NANOSPHERE? OR NANOSIZ? OR NANOSCAL? OR NANOMATERIAL? OR
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                NANOTUB?
L18             QUE ABB=ON  PLU=ON  (NANO OR NM)(A)(PARTICL? OR PARTICULA
                T? OR SPHERE? OR SIZ? OR SCAL? OR TUB? OR MATERIAL?)
L19         47741 SEA ABB=ON  PLU=ON  (C OR CARBON?)(2A)(L17 OR L18)
L20             1 SEA ABB=ON  PLU=ON  L7 AND L19
L21           495 SEA ABB=ON  PLU=ON  (L10 OR L12) AND L19
L22            41 SEA ABB=ON  PLU=ON  L21 AND L15
L23             9 SEA ABB=ON  PLU=ON  L22 AND (PY<=2004 OR PRY<=2004 OR
                AY<=2004)
L24             1 SEA ABB=ON  PLU=ON  (L9 OR L14 OR L16 OR L20) AND L23
L25             8 SEA ABB=ON  PLU=ON  L23 NOT L24
L26            23 SEA ABB=ON  PLU=ON  L13 AND HYDROGENAT?(2A)(CAT# OR
                CATAL?)
L27             0 SEA ABB=ON  PLU=ON  L25 AND L26
L28            22 SEA ABB=ON  PLU=ON  L26 NOT L24
L29            21 SEA ABB=ON  PLU=ON  L28 AND (PY<=2004 OR PRY<=2004 OR
                AY<=2004)
                D KWIC 1-2
L30         13838 SEA ABB=ON  PLU=ON  REDUC?(3A)(PD### OR PALLADIUM?)
L31             1 SEA ABB=ON  PLU=ON  L26 AND L30


=> fil hcap
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FILE LAST UPDATED: 25 Mar 2008  (20080325/ED)

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=> d l24 ibib abs hitstr hitind

L24  ANSWER 1 OF 1  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:         2004:1005759  HCAPLUS  Full-text
DOCUMENT NUMBER:          141:401613
TITLE:                    A method for preparation of a palladium
                          -containing hydrogenation catalyst
INVENTOR(S):              Ukraintsev, V. B.; Khokhryakov, K. A.; Sobolev,
                          N. Z.; Dyuzhev, G. A.; Prokof'ev, V. M.
PATENT ASSIGNEE(S):       Russia
SOURCE:                   Russ., No pp. given
                          CODEN: RUXXE7
```

DOCUMENT TYPE: Patent
LANGUAGE: Russian
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| RU 2240182 | C1 | 20041120 | RU 2003-122564 | 200307 10 |
| | | | <-- | |
| WO 2005007288 | A1 | 20050127 | WO 2004-RU263 | 200407 06 |
| | | | <-- | |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| US 2006205589 | A1 | 20060914 | US 2006-564019 | 200601 09 |
| | | | <-- | |
| PRIORITY APPLN. INFO.: | | | RU 2003-122564 A | 200307 10 |
| | | | <-- | |
| | | | WO 2004-RU263 W | 200407 06 |
| | | | <-- | |

AB Palladium-containing hydrogenation catalyst suitable for control of an autocatalytic reaction is prepared by reducing Pd(II) from the initial compound, in particular tetraaquapalladium(II) perchlorate, and depositing the reduced palladium onto carbonaceous nanomaterial. The carbonaceous nanomaterial can be selected from C60-fullerene, a mixture of C60- and C70-fullerene (weight ratio (60-80):(20-40)), carbon nanotubes, and cathode deposits. The resulting catalyst has better catalytic activity and provides catalysis at room temperature and atmospheric pressure.

IT 7440-05-3, Palladium, uses 35878-49-5 99685-96-8, C60-Fullerene 115383-22-7, C70-Fullerene
RL: CAT (Catalyst use); USES (Uses)
(method for preparation of a palladium-containing hydrogenation catalyst)

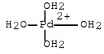
RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

Pd

RN 35978-49-5 HCAPLUS
CN Palladium(2+), tetraaqua-, (SP-4-1)-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

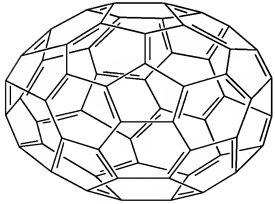
CRN 22573-07-5
CMF H8 O4 Pd
CCI CCS



CM 2

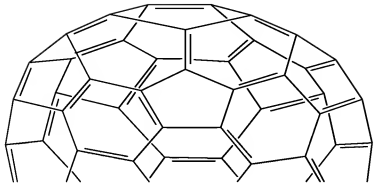
CRN 14797-73-0
CMF Cl O4

RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)

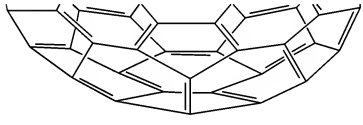


RN 115383-22-7 HCAPLUS
CN [5,6]Fullerene-C70-D5h(6) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



IC ICM B01J037-03
ICS B01J037-16
CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
ST palladium contg hydrogenation catalyst prepn
IT Nanotubes
(carbon; method for preparation of a palladium-containing hydrogenation catalyst)
IT Dehydrogenation catalysts
Hydrogenation catalysts
Nanoparticles
(method for preparation of a palladium-containing hydrogenation catalyst)
IT 7440-05-3, Palladium, uses 35978-49-5
99685-96-8, C60-Fullerene 115383-22-7, C70-Fullerene
RL: CAT (Catalyst use); USES (Uses)
(method for preparation of a palladium-containing hydrogenation catalyst)

=> d l25 ibib abs hitstr hitind 1-8

L25 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:501358 HCAPLUS Full-text
DOCUMENT NUMBER: 143:51731
TITLE: The effects of process parameters on size, density, structure, and field emission properties of Pd-catalyzed carbon nanotubes synthesized by thermal chemical vapor deposition
AUTHOR(S): Wei, S.; Kang, W. P.; Hofmeister, W. H.; Davidson, J. L.; Wong, Y. M.; Huang, J. H.
CORPORATE SOURCE: Interdisciplinary Graduate Program in Material Science, Vanderbilt Univ., Nashville, TN, 37235, USA
SOURCE: Technical Digest of the International Vacuum Nanoelectronics Conference, 17th, Cambridge, MA, United States, July 11-16, 2004 (2004) , 90-91. Editor(s): Akinwande, Akintunde I. Institute of Electrical and Electronics Engineers: New York, N. Y. CODEN: 69GXF5; ISBN: 0-7803-8397-4
DOCUMENT TYPE: Conference
LANGUAGE: English

AB Carbon nanotubes (CNTs) produced by chemical vapor deposition under use of Pd as catalyst were systematically compared by catalysts particle size, CNT morphol., Raman spectra and field emission characteristics. The field emission behavior under high vacuum was analyzed and correlated to the processing-structure behavior of the CNTs.

IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); USES (Uses)
(effects of process parameters on size, d., structure, and field emission properties of Pd-catalyzed carbon nanotubes synthesized by thermal chemical vapor deposition)
RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

Pd

CC 76-12 (Electric Phenomena)
Section cross-reference(s): 49, 73
ST carbon nanotube palladium catalyzed chem vapor deposition field emission
IT Nanotubes
(carbon; effects of process parameters on size, d., structure, and field emission properties of Pd-catalyzed carbon nanotubes synthesized by thermal chemical vapor deposition)
IT Vapor deposition process
(chemical, thermal; effects of process parameters on size, d., structure, and field emission properties of Pd-catalyzed carbon nanotubes synthesized by thermal chemical vapor deposition)
IT Field emission
Particles
Raman spectra
(effects of process parameters on size, d., structure, and field emission properties of Pd-catalyzed carbon nanotubes synthesized by thermal chemical vapor deposition)
IT 74-82-8, Methane, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(carbon source; effects of process parameters on size, d., structure, and field emission properties of Pd-catalyzed carbon nanotubes synthesized by thermal chemical vapor deposition)

IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); USES (Uses)
(effects of process parameters on size, d., structure, and field emission properties of Pd-catalyzed carbon nanotubes synthesized by thermal chemical vapor deposition)

IT 7440-44-0P, Carbon, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(nanotubes; effects of process parameters on size, d., structure, and field emission properties of Pd-catalyzed carbon nanotubes synthesized by thermal chemical vapor deposition)

L25 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:973428 HCAPLUS Full-text
DOCUMENT NUMBER: 141:384764
TITLE: Atomic Hydrogen Storage in Carbon Nanotubes Promoted by Metal Catalysts
AUTHOR(S): Yoo, E.; Gao, L.; Komatsu, T.; Yagai, N.; Arai, K.; Yamazaki, T.; Matsuishi, K.; Matsumoto, T.; Nakamura, J.
CORPORATE SOURCE: Institute of Materials Science, University of Tsukuba, Tsukuba, Ibaraki, 305-8573, Japan
SOURCE: Journal of Physical Chemistry B (2004), 108(49), 18903-18907
CODEN: JPCBFK; ISSN: 1520-6106
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Atomic hydrogen storage by carbon nanotubes (CNTs) at atmospheric pressure is studied using Pd and La catalysts for dissociation of H2 into atomic hydrogen and formation of defects on CNT surfaces, resp. The defect sites on CNTs as adsorption sites of atomic hydrogen are prepared by oxidation pretreatment using a La catalyst. Pd catalysts are then deposited on CNT surfaces for dissociation of H2 into atomic hydrogen, which then spills over to the defect sites. In the best case, 1.0 wt % hydrogen is stored in the defective CNT with Pd particles at 1 atm and 573 K. The hydrogen desorption in temperature programmed desorption (TPD) expts. started at 700-900 K, which agreed with the annealing temps. of CNTs prior to hydrogen storage. Also, the amount of hydrogen stored in CNTs decreased with increasing annealing temperature These results are ascribed to the crystallization of the defective structure of CNT into graphitic structure. The activation energies of 46.6, 87.3, and 129.8 kJ/mol derived from the desorption peaks of hydrogen in the defective CNT with Pd particles vary from 46.6 to 129.8 kJ/mol, depending on the annealing temps. at 523, 623, and 773 K, resp. The difference in the activation energies is probably due to the energies required for the recrystn. of the defect sites into the graphite structure.

IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); PRP (Properties); USES (Uses)
(atomic hydrogen storage in carbon nanotubes promoted by metal catalysts)

RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

Pd

CC 67-3 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 66
ST atomic hydrogen storage carbon nanotube promoted metal catalyst
IT Activation energy
Adsorption
Catalysts
Crystallization
Dissociation catalysts
Recrystallization
Surface defects
(atomic hydrogen storage in carbon nanotubes promoted by metal catalysts)
IT Metals, uses
RL: CAT (Catalyst use); PRP (Properties); USES (Uses)
(atomic hydrogen storage in carbon nanotubes promoted by metal catalysts)
IT Nanotubes
(carbon; atomic hydrogen storage in carbon nanotubes promoted by metal catalysts)
IT Desorption
(thermal; atomic hydrogen storage in carbon nanotubes promoted by metal catalysts)
IT 7439-91-0, Lanthanum, uses 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); PRP (Properties); USES (Uses)
(atomic hydrogen storage in carbon nanotubes promoted by metal catalysts)
IT 7440-44-0, Carbon, properties 12385-13-6, Atomic hydrogen, properties
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(atomic hydrogen storage in carbon nanotubes promoted by metal catalysts)
REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L25 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:661490 HCAPLUS Full-text
TITLE: New catalyst supports for palladium nanoparticles: Carbonized and metal oxide nanofibers prepared by electrospinning
AUTHOR(S): Dong, Hong; Jones, Wayne E.
CORPORATE SOURCE: Department of Chemistry, State University of New York at Binghamton, Binghamton, NY, 13902, USA
SOURCE: Abstracts of Papers, 228th ACS National Meeting, Philadelphia, PA, United States, August 22-26, 2004 (2004), INOR-317. American Chemical Society: Washington, D. C.
CODEN: 69FTZ8
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English

AB Carbonized fibers with diameter .apprx. 210 nm and mesoporous titania nanofibers with diameter .apprx.340 nm have been prepared by thermal treatment of electrospun polyacrylnitrile (PAN) fibers and titanium isopropoxide/poly(Me methacrylate) (TiP/PMMA) fibers, resp. Electrospinning, a simple and non-mech. method, was used to fabricate PAN and TiP/PMMA composite fibers. Pd nanoparticles were deposited on carbonized nanofibers by impregnation, followed by calcination and reduction by hydrogen. The deposition of Pd nanoparticles on titania nanofibers was achieved by deposition-precipitation on TiP/PMMA fibers, followed by calcination to convert the composite fibers into titania fibers and subsequent reduction by hydrogen. The Pd particle loaded nanofibers were characterized by SEM, TEM, EDS and the catalytic activity was investigated using standardized liquid phase organic reactions for comparison to com. available catalytic materials.

L25 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:556830 HCAPLUS Full-text
DOCUMENT NUMBER: 141:214483
TITLE: Platinum Monolayer Electrocatalysts for O2 Reduction: Pt Monolayer on Pd(111) and on Carbon-Supported Pd Nanoparticles
AUTHOR(S): Zhang, J.; Mo, Y.; Vukmirovic, M. B.; Klie, R.; Sasaki, K.; Adzic, R. R.
CORPORATE SOURCE: Materials Science Department, Brookhaven National Laboratory, Upton, NY, 11973-5000, USA
SOURCE: Journal of Physical Chemistry B (2004), 108(30), 10955-10964
CODEN: JPCBFK; ISSN: 1520-6106
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The kinetics of oxygen reduction was studied in acid solns. on Pt monolayers deposited on a Pd(111) surface and on C-supported Pd nanoparticles using the rotating disk-ring electrode technique. These electrocatalysts were prepared by a new method for depositing Pt monolayers involving the galvanic displacement by Pt of an underpotentially deposited Cu monolayer on a Pd substrate and characterized by scanning tunneling and transmission electron microscopies. The kinetics of O2 reduction shows a significant enhancement at Pt monolayers on Pd(111) and Pd nanoparticle surfaces in comparison with the reaction on Pt(111) and Pt nanoparticles. The 4-electron reduction, with a 1st-charge transfer-rate determining step, is operative on both surfaces. The observed increase in the catalytic activity of Pt monolayer surfaces compared with Pt bulk and nanoparticle electrodes may reflect decreased formation of PtOH. An enhanced atomic scale surface roughness and low coordination of some atoms may contribute to the observed activity. Placing a Pt monolayer on a suitable metal nanoparticle substrate is an attractive way of designing better O2 reduction electrocatalysts. Also, by using this method the Pt content is reduced to very low levels. The Pt mass-specific activity of the Pt/Pd/C electrode is 5-8 times higher than that of the Pt/C electrocatalyst. The noble metal (Pt + Pd) mass-specific activity is 2 times higher than that of Pt/C.

IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); DEV (Device component use); PRP (Properties); USES (Uses)
(electrocatalysts from platinum monolayer on Pd(111) and on carbon-supported Pd nanoparticles for O2 reduction in acidic solns.)

RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

Pd

CC 72-2 (Electrochemistry)
Section cross-reference(s): 66, 67
IT Monolayers
Nanoparticles
(electrocatalysts from platinum monolayer on Pd(111) and on carbon-supported Pd nanoparticles for O2 reduction in acidic solns.)
IT Reduction kinetics
(electrochem.; of oxygen platinum monolayer on Pd(111) and on carbon-supported Pd nanoparticles for O2 reduction in acidic solns.)
IT Reduction catalysts
(electrochem.; platinum monolayer on Pd(111) and on carbon-supported Pd nanoparticles for O2 in acidic solns.)
IT Cathodic polarization
(in oxygen electrochem. reduction on platinum monolayer on Pd(111) and on carbon-supported Pd nanoparticles for O2 reduction in acid solns.)
IT Particle size distribution
(nanoscale; of palladium nanoparticles and platinum monolayer on Pd(111) nanoparticles on carbon black for electrocatalyst for oxygen reduction)
IT Reduction, electrochemical
(of oxygen platinum monolayer on Pd(111) and on carbon -supported Pd nanoparticles for O2 reduction in acidic solns.)
IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses
RL: CAT (Catalyst use); DEV (Device component use); PRP (Properties); USES (Uses)
(electrocatalysts from platinum monolayer on Pd(111) and on carbon-supported Pd nanoparticles for O2 reduction in acidic solns.)
IT 7782-44-7, Oxygen, properties
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(electrocatalysts from platinum monolayer on Pd(111) and on carbon-supported Pd nanoparticles for O2 reduction in acidic solns.)
IT 7664-93-9, Sulfuric acid, uses
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(electrochem. reduction of oxygen platinum monolayer on Pd(111) and on carbon-supported Pd nanoparticles for O2 reduction in solns. of)
REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L25 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:789107 HCAPLUS Full-text
DOCUMENT NUMBER: 140:34505
TITLE: Characterization of bias-controlled carbon nanotubes
AUTHOR(S): Tsai, C. L.; Chen, C. F.
CORPORATE SOURCE: Department of Materials Science and Engineering,

National Chiao Tung University, Hsinchu, 30050, Taiwan
SOURCE: Diamond and Related Materials (2003), 12(9), 1615-1620
CODEN: DRMTE3; ISSN: 0925-9635
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The authors focus on the immediately improving quality of growing C nanotubes without any pre- or post-treatment. The applied biases during the reaction can directly control the diameter and the quality of C nanotubes. This simple step skips addnl. treatments and is easily used in many deposition systems. The diameter of C nanotubes noticeably varies from 45 nm without any amorphous C (under +80 V) to 120 nm (under -120 V). Raman spectra indicate that ID/IG ratio decreases with increasing pos. bias. This implies applying pos. bias could enhance the graphitization of C nanotubes. However, pos. and neg. bias effects slightly vary the field emission enhancement. C nanotubes grown under pos. bias possess better field emission characterization. This results from the following reasons: (I) smaller diameter; (II) pure surface; (III) more graphitized structure; and (IV) higher field enhancement β.

IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); USES (Uses)
(bias-controlled deposition of carbon nanotubes and their properties)
RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

Pd

CC 76-12 (Electric Phenomena)
Section cross-reference(s): 75
ST bias plasma CVD carbon nanotube current voltage Raman
IT Bias potential
Electric current-potential relationship
Raman spectra
(bias-controlled deposition of carbon nanotubes and their properties)
IT Nanotubes
(carbon; bias-controlled deposition of carbon nanotubes and their properties)
IT Vapor deposition process
(plasma; bias-controlled deposition of carbon nanotubes and their properties)
IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); USES (Uses)
(bias-controlled deposition of carbon nanotubes and their properties)
IT 74-82-8, Methane, processes 1333-74-0, Hydrogen, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(bias-controlled deposition of carbon nanotubes and their properties)
IT 7439-98-7, Molybdenum, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES

(Uses)
(bias-controlled deposition of carbon nanotubes and their properties)
IT 7440-44-0P, Carbon, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(nanotubes; bias-controlled deposition of carbon nanotubes and their properties)
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L25 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:575952 HCAPLUS Full-text
DOCUMENT NUMBER: 139:297421
TITLE: CO adsorption on Rh, Pd and Ag atoms deposited on the MgO surface: a comparative ab initio study
AUTHOR(S): Giordano, Livia; Del Vitto, Annalisa; Pacchioni, Gianfranco; Ferrari, Anna Maria
CORPORATE SOURCE: Istituto Nazionale per la Fisica della Materia, Dipartimento di Scienza dei Materiali, Universita di Milano-Bicocca, Milan, 20125, Italy
SOURCE: Surface Science (2003), 540(1), 63-75
CODEN: SUSCAS; ISSN: 0039-6028
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The adsorption properties of CO mols. adsorbed on Rh, Pd, and Ag atoms supported on various sites of the MgO surface have been studied by means of a d. functional cluster model approach. The metal atoms are stabilized with different binding energies on the regular and morphol. defect sites of the surface. Among others we considered oxide anions, neutral and charged anion vacancies (F centers) located at terraces, steps, edges, and corners. CO is used as a probe mol. to characterize where the metal atoms are located. This is done by analyzing how the metal-CO binding energy and the C-O stretching frequency change as function of the substrate site where the metal atom is bound.
IT 7440-05-3, Palladium, processes
RL: CAT (Catalyst use); CPS (Chemical process); PEP (Physical, engineering or chemical process); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(CO adsorption on Rh, Pd and Ag atoms deposited on the MgO surface)
RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

Pd

CC 66-3 (Surface Chemistry and Colloids)
Section cross-reference(s): 67
ST rhodium palladium silver nanoparticle magnesia adsorption carbon monoxide catalysis
IT Adsorption

Adsorption energy
Anions
Chemisorbed substances
Chemisorption
Complexation
Crystal vacancies
F-centers
Molecular vibration
Nanoparticles
Stepped surface structure
Stretching vibration
Surface defects
Surface state
(CO adsorption on Rh, Pd and Ag atoms deposited on the MgO surface)

IT 7440-22-4, Silver, processes
RL: CAT (Catalyst use); CPS (Chemical process); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(CO adsorption on Rh, Pd and Ag atoms deposited on the MgO surface)

IT 7440-05-3, Palladium, processes 7440-16-6, Rhodium, processes
RL: CAT (Catalyst use); CPS (Chemical process); PEP (Physical, engineering or chemical process); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(CO adsorption on Rh, Pd and Ag atoms deposited on the MgO surface)

IT 630-08-0, Carbon monoxide, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(CO adsorption on Rh, Pd and Ag atoms deposited on the MgO surface)

IT 39587-13-8, Palladium dicarbonyl 66454-17-9, Rhodium dicarbonyl
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(CO adsorption on Rh, Pd and Ag atoms deposited on the MgO surface)

IT 1309-48-4, Magnesia, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(CO adsorption on Rh, Pd and Ag atoms deposited on the MgO surface)

REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L25 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:287646 HCAPLUS Full-text
DOCUMENT NUMBER: 139:186225
TITLE: Thermal stability of metal nanoclusters formed by low-pressure plasma sputtering
AUTHOR(S): Thomann, A. L.; Salvetat, J. P.; Breton, Y.; Andreazza-Vignolle, C.; Brault, P.
CORPORATE SOURCE: GREMI-ESPEO, CNRS-Universite d'Orleans, Orleans, 45067, Fr.
SOURCE: Thin Solid Films (2003), 428(1-2), 242-247
CODEN: THSFAP; ISSN: 0040-6090
PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal
LANGUAGE: English

AB The morphol. characterization of palladium (Pd) nanoclusters obtained by low-pressure plasma sputtering is presented and dedicated to catalytic carbon nanotube growth. Small Pd clusters deposited on silicon are not stable at the processing temperature (873 K); they tend to migrate and coalesce with their close neighbors. Heat treatment in fact leads to a bimodal cluster size distribution (2 nm and 10-30 nm), starting from 5-nm as-deposited nanoclusters. Another consequence is the appearance on the silicon substrate of areas containing low (isolated aggregates) or high cluster d. Knowledge of the metal cluster thermal evolution is of great importance in understanding the nanotube growth mechanism. First results indicate that the carbon structures grow only on particles of large size.

IT 7440-05-3, Palladium, properties
RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(thermal stability of palladium nanoclusters formed by low-pressure plasma sputtering in relation to carbon nanotube CVD)

RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

Pd

CC 66-3 (Surface Chemistry and Colloids)
Section cross-reference(s): 57, 67

ST palladium nanocluster sputtering thermal stability carbon nanotube CVD

IT Nanotubes
(carbon; thermal stability of palladium nanoclusters formed by low-pressure plasma sputtering in relation to carbon nanotube CVD)

IT Vapor deposition process
(chemical; thermal stability of palladium nanoclusters formed by low-pressure plasma sputtering in relation to carbon nanotube CVD)

IT Nanoparticles
Particle size distribution
Sputtering
Thermal stability
(thermal stability of palladium nanoclusters formed by low-pressure plasma sputtering in relation to carbon nanotube CVD)

IT 7440-44-0, Carbon, properties
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)
(nanotubes; thermal stability of palladium nanoclusters formed by low-pressure plasma sputtering in relation to carbon nanotube CVD)

IT 7440-21-3, Silicon, uses
RL: NUU (Other use, unclassified); USES (Uses)
(substrate; thermal stability of palladium nanoclusters formed by low-pressure plasma sputtering in relation to carbon nanotube CVD)

IT 7440-05-3, Palladium, properties
RL: CAT (Catalyst use); PEP (Physical, engineering or

chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(thermal stability of palladium nanoclusters formed by low-pressure plasma sputtering in relation to carbon nanotube CVD)
IT 74-86-2, Acetylene, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(thermal stability of palladium nanoclusters formed by low-pressure plasma sputtering in relation to carbon nanotube CVD)
REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L25 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:623459 HCAPLUS Full-text
DOCUMENT NUMBER: 133:210163
TITLE: Low-temperature growth of carbon nanotubes by thermal chemical vapor deposition using Pd, Cr, and Pt as co-catalyst
AUTHOR(S): Lee, C. J.; Park, J.; Kim, J. M.; Huh, Y.; Lee, J. Y.; No, K. S.
CORPORATE SOURCE: School of Electrical Engineering, Kunsan National University, Kunsan, 573-701, S. Korea
SOURCE: Chemical Physics Letters (2000), 327(5,6), 277-283
CODEN: CHPLBC; ISSN: 0009-2614
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Palladium (Pd), chromium (Cr), and platinum (Pt) are used as co-catalysts to decrease the growth temperature of carbon nanotubes to 500-550°C. Pd is found to be the most efficient co-catalyst for the growth of carbon nanotubes on cobalt-nickel catalytic particles deposited on a silicon oxide substrate by thermal chemical vapor deposition using C2H2. High-resolution transmission electron microscopy reveals the bamboo-shaped carbon nanotubes grown at 500°C using Pd, while the curled carbon nanofibers are grown at 550°C using Cr.
IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); USES (Uses)
(low-temperature growth of carbon nanotubes by thermal chemical vapor deposition using Pd, Cr, and Pt as co-catalysts)
RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

Pd

CC 49-1 (Industrial Inorganic Chemicals)
Section cross-reference(s): 57, 67
ST carbon nanotube thermal CVD low temp; palladium catalyst carbon nanotube thermal CVD; platinum catalyst carbon nanotube thermal CVD; chromium catalyst carbon nanotube thermal CVD
IT Nanotubes

RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(carbon; low-temperature growth of carbon nanotubes by thermal chemical vapor deposition using Pd, Cr, and Pt as co-catalysts)

IT Vapor deposition process
(chemical; low-temperature growth of carbon nanotubes by thermal chemical vapor deposition using Pd, Cr, and Pt as co-catalysts)

IT Decomposition
(low-temperature growth of carbon nanotubes by thermal chemical vapor deposition using Pd, Cr, and Pt as co-catalysts)

IT Carbon fibers, preparation
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(nanofibers; low-temperature growth of carbon nanotubes by thermal chemical vapor deposition using Pd, Cr, and Pt as co-catalysts)

IT 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7631-86-9, Silica, uses
RL: CAT (Catalyst use); USES (Uses)
(low-temperature growth of carbon nanotubes by thermal chemical vapor deposition using Pd, Cr, and Pt as co-catalysts)

IT 74-86-2, Acetylene, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(low-temperature growth of carbon nanotubes by thermal chemical vapor deposition using Pd, Cr, and Pt as co-catalysts)

IT 7440-44-0P, Carbon, preparation
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(low-temperature growth of carbon nanotubes by thermal chemical vapor deposition using Pd, Cr, and Pt as co-catalysts)

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> => d l29 ibib abs hitstr hitind 1-21

L29 ANSWER 1 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:984133 HCAPLUS Full-text
DOCUMENT NUMBER: 142:361229
TITLE: Modeling of the molecular structure and catalytic activity of the new fullerene-based catalyst (η2-C60)Pd (PPh3)2: An application in the reaction of selective hydrogenation of acetylenic alcohols
AUTHOR(S): Yanov, Ilya; Leszczynski, Jerzy; Sulman, E.; Matveeva, V.; Semagina, N.
CORPORATE SOURCE: Computational Center for Molecular Structure and Interactions (CCMSI), Department of Chemistry, Jackson State University, Jackson, MS, 39217-0510, USA
SOURCE: International Journal of Quantum Chemistry (

2004), 100(5), 810-817
CODEN: IJQCB2; ISSN: 0020-7608
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

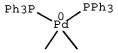
AB In this article we finalize our exptl. and theor. studies on the (η2-C60)Pd(PPh3)2 palladium-phosphine fullerene complex. Full scale ab initio quantum-chemical calcns. up to the B3LYP/SDDALL level of theory have been performed to determine the structure and electronic spectrum of (η2-C60)Pd(PPh3)2. Based on the results of calcns. and exptl. data we conclude that the preliminary interaction of the catalyst with the substrate facilitates the interaction of the substrate-catalyst complex with H2 by decreasing the energy barrier. In conclusions we summarize the results of our studies of the structure and electronic spectrum of the investigated complex, the kinetics of catalytic reactions, the influence of the solvents on the catalyst's activity in the heterogeneous phase, and provide the possible mechanism of catalytic reaction.

IT 138955-37-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(modeling of mol. structure and catalytic activity of new fullerene-based catalyst (η2-C60)Pd(PPh3)2 and application in reaction of selective hydrogenation of acetylenic alcs.)

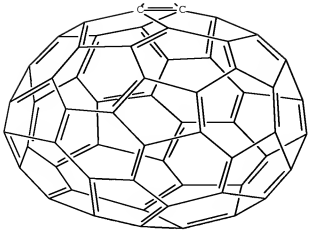
RN 138955-37-0 HCAPLUS

CN Palladium, [(1,9-η)-[5,6]fullerene-C60-Ih]bis(triphenylphosphine)- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



CC 65-5 (General Physical Chemistry)
Section cross-reference(s): 67
ST mol structure catalysis fullerene catalyst selective hydrogenation acetylenic alc
IT Alcohols, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(alkynyl; modeling of mol. structure and catalytic activity of new fullerene-based catalyst (η2-C60)Pd (PPh3)2 and application in reaction of selective hydrogenation of acetylenic alcs.)
IT Electron affinity
Hydrogenation catalysts
Ionization potential
Molecular structure
(modeling of mol. structure and catalytic activity of new fullerene-based catalyst (η2-C60)Pd (PPh3)2 and application in reaction of selective hydrogenation of acetylenic alcs.)
IT Fullerenes
RL: CAT (Catalyst use); USES (Uses)
(modeling of mol. structure and catalytic activity of new fullerene-based catalyst (η2-C60)Pd (PPh3)2 and application in reaction of selective hydrogenation of acetylenic alcs.)
IT Hydrogenation
(selective; modeling of mol. structure and catalytic activity of new fullerene-based catalyst (η2-C60)Pd (PPh3)2 and application in reaction of selective hydrogenation of acetylenic alcs.)
IT 74-86-2, Acetylene, reactions 29171-20-8, Dehydrolinalool 139955-37-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(modeling of mol. structure and catalytic activity of new fullerene-based catalyst (η2-C60)Pd (PPh3)2 and application in reaction of selective hydrogenation of acetylenic alcs.)
REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

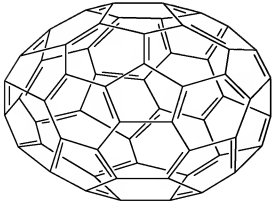
L29 ANSWER 2 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:156947 HCAPLUS Full-text
DOCUMENT NUMBER: 139:58634
TITLE: Catalytic hydrogenation of C60 on transition metals
AUTHOR(S): Osaki, Toshihiko; Hamada, Tomoki; Tai, Yutaka
CORPORATE SOURCE: National Institute of Advanced Industrial Science and Technology (AIST), Shimoshidami, Moriyama-ku, Nagoya, 463-8560, Japan
SOURCE: Reaction Kinetics and Catalysis Letters ( 2003), 78(2), 217-223
CODEN: RKCLAU; ISSN: 0133-1736
PUBLISHER: Akademiai Kiado
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The catalytic hydrogenation of C60 on Ru, Rh and Ir produced C60H18 mainly, while Pd, Pt, Co and Ni catalysts gave C60H36 principally. Very little activity was observed on Au and Fe. The higher hydrogenated fullerene obtained on Pd, Pt, Co and Ni was ascribed to the smaller % d-character of the metallic bond, on which the fullerene and hydrogen may more strongly be adsorbed.

IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); PRP (Properties); USES (Uses)
(catalytic hydrogenation of fullerene C60 on transition metals)
RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

Pd

IT 99685-96-8, Fullerene(C60)
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalytic hydrogenation of fullerene C60 on transition metals)
RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



IT 130797-14-7P 130797-17-0P
RL: SPN (Synthetic preparation); PREP (Preparation)

(catalytic hydrogenation of fullerene C60 on transition metals)

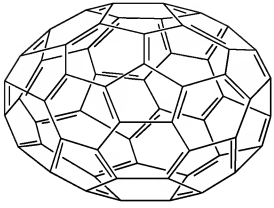
RN 130797-14-7 HCAPLUS

CN [5,6]Fullerene-C60-Ih, octadecahydro- (CA INDEX NAME)

CM 1

CRN 99685-96-8

CMF C60



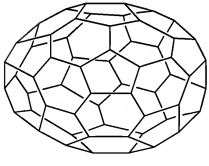
RN 130797-17-0 HCAPLUS

CN [5,6]Fullerene-C60-Ih, hexatriacontahydro- (CA INDEX NAME)

CM 1

CRN 136374-40-8

CMF C60 H60



CC 67-2 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)

ST catalytic hydrogenation fullerene C60 transition metal

IT Hydrogenation catalysts

(catalytic hydrogenation of fullerene C60 on transition metals)

IT Transition metals, uses

RL: CAT (Catalyst use); PRP (Properties); USES (Uses)

(catalytic hydrogenation of fullerene C60 on transition metals)
IT 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-48-4, Cobalt, uses 7440-57-5, Gold, uses
RL: CAT (Catalyst use); PRP (Properties); USES (Uses)
(catalytic hydrogenation of fullerene C60 on transition metals)
IT 1333-74-0, Hydrogen, reactions 99685-96-8, Fullerene(C60)
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalytic hydrogenation of fullerene C60 on transition metals)
IT 130797-14-7P 130797-17-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(catalytic hydrogenation of fullerene C60 on transition metals)
REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 3 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:36428 HCAPLUS Full-text
DOCUMENT NUMBER: 138:89590
TITLE: Method for preparation of hydrogenated fullerene by hydrogenation of fullerene using ruthenium, palladium, iridium, platinum, or cobalt supported on activated alumina
INVENTOR(S): Ozaki, Toshihiko; Tai, Yutaka
PATENT ASSIGNEE(S): National Institute of Advanced Industrial Science and Technology, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 2003012572 | A | 20030115 | JP 2001-191005 | 200106 25 |
| JP 3858087 | B2 | 20061213 | <-- | |
| PRIORITY APPLN. INFO.: | | | JP 2001-191005 | 200106 25 |
| | | | <-- | |

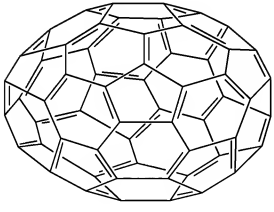
OTHER SOURCE(S): CASREACT 138:89590
AB Hydrogenated fullerene is prepared by conversion of C60 fullerene into from C60H18 to C60H36 under mild hydrogenation conditions using one of Ru, Pd, Ir, Pt, and Co metal supported on an activated alumina. Also claimed is a method for storage of hydrogen by above conversion of C60 fullerene into from C60H18 to C60H36. The hydrogenation catalyst is prepared by impregnation of activated alumina in an aqueous solution of metal salt selected from ruthenium chloride, palladium chloride, iridium chloride, platinum chloride, and cobalt nitrate, evaporation of water, drying, and firing at 400-800°. The catalyst obtained is hydrogenated at 400-800° under hydrogen atmospheric before its

use. This process highly efficiently gives in high yield with high selectivity and without decomposition, hydrogenated fullerene which is useful as light-weight hydrogen storage material with higher hydrogen storage ratio (.apprx.2.4 weight % and .apprx.4.8 weight% C60H18 and C60H36, resp.) as compared to metal-based hydrogen storage material (e.g. 1.4 weight% for LaNi5H6) and may find an application for fuel cell automobile. Thus, 50 mg C60 fullerene and 10 weight% Co/10 g activated alumina in 200 mL toluene were hydrogenated in an autoclave at 150° for 300 min to give a mixture of hydrogenated C60 fullerene containing from C60H18 to C60H36 with 100% conversion ratio.

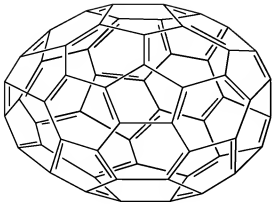
IT 7440-05-3D, Palladium, supported on activated alumina
RL: CAT (Catalyst use); USES (Uses)
(preparation of hydrogenated fullerene as hydrogen storage material by hydrogenation of fullerene using Ru, Pd, Ir, Pt, or Co supported on activated alumina)
RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

Pd

IT 99685-96-8, C60 Fullerene
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of hydrogenated fullerene as hydrogen storage material by hydrogenation of fullerene using Ru, Pd, Ir, Pt, or Co supported on activated alumina)
RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



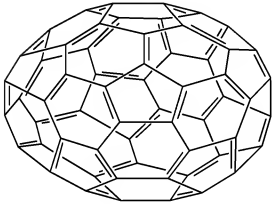
IT 99685-96-8DP, C60 Fullerene, hydrogenated
130797-14-7P, Octadecahydrofullerene-C60
130797-17-0P, Hexatriacontahydrofullerene-C60
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of hydrogenated fullerene as hydrogen storage material by hydrogenation of fullerene using Ru, Pd, Ir, Pt, or Co supported on activated alumina)
RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



RN 130797-14-7 HCAPLUS
CN [5,6]Fullerene-C60-Ih, octadecahydro- (CA INDEX NAME)

CM 1

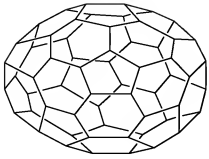
CRN 99685-96-8
CMF C60



RN 130797-17-0 HCAPLUS
CN [5,6]Fullerene-C60-Ih, hexatriacontahydro- (CA INDEX NAME)

CM 1

CRN 136374-40-8
CMF C60 H60



IC ICM C07C013-64
ICS B01J023-42; B01J023-44; B01J023-46; B01J023-75; B01J037-02; B01J037-08; B01J037-18; C07C005-02; C07B061-00
CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
ST hydrogenated fullerene prepn hydrogen storage material; fullerene hydrogenation; ruthenium supported activated alumina hydrogenation catalyst; palladium supported activated alumina hydrogenation catalyst; iridium supported activated alumina hydrogenation catalyst; platinum supported activated alumina hydrogenation catalyst; cobalt supported activated alumina hydrogenation catalyst
IT Hydrogenation
Hydrogenation catalysts
(preparation of hydrogenated fullerene as hydrogen storage material by hydrogenation of fullerene using Ru, Pd, Ir, Pt, or Co supported on activated alumina)
IT 7439-88-5D, Iridium, supported on activated alumina 7440-05-3D, Palladium, supported on activated alumina 7440-06-4D, Platinum, supported on activated alumina 7440-18-8D, Ruthenium, supported on activated alumina 7440-48-4D, Cobalt, supported on activated alumina
RL: CAT (Catalyst use); USES (Uses)
(preparation of hydrogenated fullerene as hydrogen storage material by hydrogenation of fullerene using Ru, Pd, Ir, Pt, or Co supported on activated alumina)
IT 1333-74-0, Hydrogen, reactions 7647-10-1, Palladium chloride 10025-83-9, Iridium chloride 10049-08-8, Ruthenium chloride 10141-05-6, Cobalt nitrate 12648-47-4, Platinum chloride 99685-96-8, C60 Fullerene
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of hydrogenated fullerene as hydrogen storage material by hydrogenation of fullerene using Ru, Pd, Ir, Pt, or Co supported on activated alumina)
IT 99685-96-8DP, C60 Fullerene, hydrogenated 130797-14-7P, Octadecahydrofullerene-C60 130797-17-0P, Hexatriacontahydrofullerene-C60
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of hydrogenated fullerene as hydrogen storage material by hydrogenation of fullerene using Ru, Pd, Ir, Pt, or Co supported on activated alumina)

L29 ANSWER 4 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:390672 HCAPLUS Full-text
DOCUMENT NUMBER: 133:104857
TITLE: Promotion of fullerene hydride synthesis by

intermetallic compounds
AUTHOR(S): Tarasov, B. P.; Fokin, V. N.; Moravsky, A. P.; Shul'ga, Yu. M.; Yartys, V. A.; Schur, D. V.
CORPORATE SOURCE: Institute of New Chemical Problems of Russian Academy of Sciences, Chernogolovka, 142432, Russia
SOURCE: Hydrogen Energy Progress XII, Proceedings of the World Hydrogen Energy Conference, 12th, Buenos Aires, June 21-26, 1998 (1998), Volume 2, 1221-1230. Editor(s): Bolcich, Juan Carlos; Veziroglu, T. Nejat. Asociacion Argentina del Hidrogeno: Buenos Aires, Argent.
CODEN: 69CKA9
DOCUMENT TYPE: Conference
LANGUAGE: English
AB A mixture of C60 and C70 fullerenes (fullerite) was hydrogenated in the presence of intermetallic compds. such as lanthanum nickel (LaNi5), cerium compound with lanthanum and nickel (0.25:0.75:5), lanthanum compound with manganese and nickel (1:0.35:4.65), cerium compound with cobalt (1:3), etc. Composite mixts. of fullerite with intermetallic compds. display hydrogen absorption properties and conditions for hydrogenation of double bonds in fullerene are milder, compared to direct interaction of fullerite with gaseous hydrogen. Possible use of fullerenes as hydrogen storage materials was mentioned (no data).
IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); USES (Uses)
(preparation of fullerene hydride in presence of intermetallic compds.)
RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

Pd

IT 131159-39-2, Fullerite
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of fullerene hydride in presence of intermetallic compds.)
RN 131159-39-2 HCAPLUS
CN Fullerite (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT 131159-39-2DP, Fullerite, deuterated
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of fullerene hydride in presence of intermetallic compds.)
RN 131159-39-2 HCAPLUS
CN Fullerite (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
CC 25-22 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
ST fullerene hydride prepn fullerite hydrogenation catalyst; intermetallic compd hydrogenation catalyst fullerite
IT Hydrogenation
Hydrogenation catalysts
(preparation of fullerene hydride in presence of intermetallic compds.)

IT 7439-95-4, Magnesium, uses 7440-05-3, Palladium, uses 7440-32-6, Titanium, uses 7440-62-2, Vanadium, uses 12023-04-0, Titanium compound with iron (1:1) 12057-65-7, Magnesium compound with nickel (2:1) 12185-78-3, Cerium compound with cobalt (1:3) 12196-72-4, Lanthanum nickel (LaNi5) 136441-94-6, Cerium compound with lanthanum and nickel (0.25:0.75:5) 201289-06-7, Lanthanum compound with manganese and nickel (1:0.35:4.65)
RL: CAT (Catalyst use); USES (Uses)
(preparation of fullerene hydride in presence of intermetallic compds.)

IT 131159-39-2, Fullerite
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of fullerene hydride in presence of intermetallic compds.)

IT 131159-39-2DP, Fullerite, deuterated 131159-39-2DP
, Fullerite, hydrogenated
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of fullerene hydride in presence of intermetallic compds.)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 5 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:269558 HCAPLUS Full-text
DOCUMENT NUMBER: 133:30832
TITLE: Selective homogeneous and heterogeneous hydrogenation of acetylenic alcohols (C10) using a [60] fullerene-Pd-phosphine complex: application, mechanism and kinetics
AUTHOR(S): Sulman, E. M.; Matveeva, V. G.; Semagina, N. V.; Deibele, C.; Bargon, J.; Bashilov, V. V.
CORPORATE SOURCE: Department of Biotechnology and Chemistry, Technical University, Tyer, 170026, Russia
SOURCE: Molecular Crystals and Liquid Crystals Science and Technology, Section C: Molecular Materials ( 1998), 11(1-2), 53-56
CODEN: MOMAEO; ISSN: 1058-7276
PUBLISHER: Gordon & Breach Science Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English

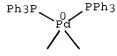
AB The [60] fullerene-Pd-phosphine complex η2-C60Pd(PPh3)2 has been employed for both homogeneous and heterogeneous hydrogenation of dehydrolinalool, with the aim of selectively hydrogenating a triple bond to a double one. The results obtained have been compared with those derived using traditional Pd-catalysts.

IT 138955-37-0
RL: CAT (Catalyst use); USES (Uses)
(selective homogeneous and heterogeneous hydrogenation kinetics of dehydrolinalool catalyzed by fullerene palladium phosphine complex)

RN 138955-37-0 HCAPLUS

CN Palladium, [(1,9-η)-[5,6]fullerene-C60-Ih]bis(triphenylphosphine)- (9CI) (CA INDEX NAME)

PAGE 1-A

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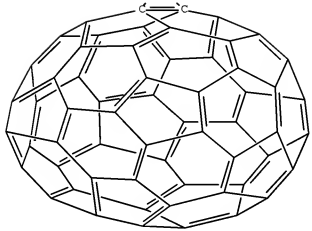



CC 30-10 (Terpenes and Terpenoids)
Section cross-reference(s): 22, 29

ST homogeneous heterogeneous hydrogenation acetylenic alc fullerene palladium phosphine kinetics; catalyst homogeneous heterogeneous hydrogenation fullerene palladium phosphine dehydro linalool; kinetics fullerene palladium phosphine catalyzed selective hydrogenation dehydrolinalool

IT Hydrogenation
Hydrogenation catalysts
Hydrogenation kinetics
(selective; selective homogeneous and heterogeneous hydrogenation kinetics of dehydrolinalool catalyzed by fullerene palladium phosphine complex)

IT 138955-37-0
RL: CAT (Catalyst use); USES (Uses)
(selective homogeneous and heterogeneous hydrogenation kinetics

of dehydrolinalool catalyzed by fullerene palladium phosphine complex)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 6 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:760476 HCAPLUS Full-text
DOCUMENT NUMBER: 132:79996
TITLE: Catalytic hydrogenation of acetylenic alcohols using palladium complex of fullerene C60
AUTHOR(S): Sulman, E.; Matveeva, V.; Semagina, N.; Yanov, I.; Bashilov, V.; Sokolov, V.
CORPORATE SOURCE: Department of Biotechnology and Chemistry, Tver Technical University, Tver, Russia
SOURCE: Journal of Molecular Catalysis A: Chemical (1999), 146(1-2), 257-263
CODEN: JMCCF2; ISSN: 1381-1169
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

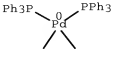
AB Catalytic properties of Pd-fullerene complex η2-C60Pd(PPh3)2 have been studied in the hydrogenation of acetylenic alcs. The kinetics of the homogeneous hydrogenation has been investigated under static conditions. The catalyst quantity and the initial concentration of acetylenic alc. have been varied. Physico-chemical properties of Pd-fullerene complex have been studied using methods of 1H NMR, IR- and UV-spectroscopies. Using exptl. results and physico-chemical investigations, the math. model of the process and the reaction mechanism have been offered.

IT 138955-37-0
RL: CAT (Catalyst use); USES (Uses)
(catalytic hydrogenation of acetylenic alcs. using palladium complex of fullerene C60)

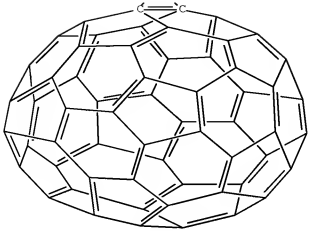
RN 138955-37-0 HCAPLUS

CN Palladium, [(1,9-η)-[5,6]fullerene-C60-Ih]bis(triphenylphosphine)- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
ST palladium fullerene hydrogenation
catalyst dehydrolinalool
IT Hydrogenation
Hydrogenation catalysts
(catalytic hydrogenation of acetylenic alcs.
using palladium complex of fullerene C60)
IT 138955-37-9
RL: CAT (Catalyst use); USES (Uses)
(catalytic hydrogenation of acetylenic alcs.
using palladium complex of fullerene C60)
IT 78-70-6P, Linalool
RL: IMF (Industrial manufacture); PREP (Preparation)
(catalytic hydrogenation of acetylenic alcs.
using palladium complex of fullerene C60)
IT 29171-20-8, Dehydrolinalool
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalytic hydrogenation of acetylenic alcs.
using palladium complex of fullerene C60)
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 7 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:613498 HCAPLUS Full-text
DOCUMENT NUMBER: 131:337181
TITLE: Study of homogeneous hydrogenation of acetylene compounds with para-hydrogen and Pd(0) and Pt(0) complexes by in situ NMR spectroscopy
AUTHOR(S): Sulman, E.; Deibele, C.; Bargon, J.
CORPORATE SOURCE: Department of Biotechnology and Chemistry, Tver Technical University, Tver, 170026, Russia
SOURCE: Reaction Kinetics and Catalysis Letters (1999), 67(1), 117-122
CODEN: RKCLAU; ISSN: 0304-4122
PUBLISHER: Akademiai Kiado
DOCUMENT TYPE: Journal

LANGUAGE: English

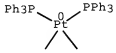
AB η2-C60Pd(PPh3)2, η2-C60Pt(PPh3)2 and C2H4Pt(PPh3)2 have been used as catalysts for homogeneous hydrogenation of acetylene compds. enriched in para-hydrogen (p-H2). The study of the processes has been carried out by in situ NMR spectroscopy. It has been concluded that the nature of the substrate affects the intensity and patterns of polarization signals.

IT 135863-99-9, (η2-Fullerene-C60)bis(triphenylphosphine)platinum 138955-37-0, (η2-Fullerene-C60)bis(triphenylphosphine)palladium
RL: CAT (Catalyst use); USES (Uses)
(study of homogeneous hydrogenation of acetylenic compds. with para-hydrogen and Pd(0) and Pt(0) complexes by in situ NMR spectroscopy)

RN 135863-99-9 HCAPLUS

CN Platinum, [(1,9-η)-[5,6]fullerene-C60-Ih]bis(triphenylphosphine)-(9CI) (CA INDEX NAME)

PAGE 1-A



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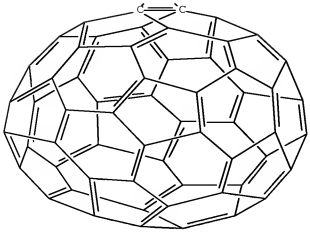
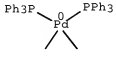


RN 138955-37-0 HCAPLUS
CN Palladium, [(1,9-η)-[5,6]fullerene-C60-Ih]bis(triphenylphosphine)- (9CI) (CA INDEX NAME)

PAGE 1-A



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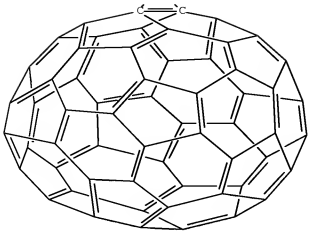


CC 30-10 (Terpenes and Terpenoids)
Section cross-reference(s): 22, 67
ST alkyne hydrogenation para hydrogen palladium platinum complex catalyst
IT Hydrogenation
Hydrogenation catalysts
Nuclear polarization
(study of homogeneous hydrogenation of acetylenic compds. with para-hydrogen and Pd(0) and Pt(0) complexes by in situ NMR spectroscopy)
IT 12120-15-9, (η2-Ethylene)bis(triphenylphosphine)platinum 135863-99-9, (η2-Fullerene-C60)bis(triphenylphosphine)platinum 138955-37-0, (η2-Fullerene-C60)bis(triphenylphosphine)palladium
RL: CAT (Catalyst use); USES (Uses)
(study of homogeneous hydrogenation of acetylenic compds. with para-hydrogen and Pd(0) and Pt(0) complexes by in situ NMR spectroscopy)
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

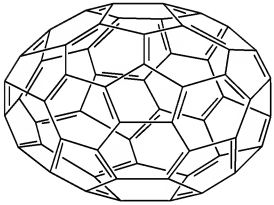
L29 ANSWER 8 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:178283 HCAPLUS Full-text
DOCUMENT NUMBER: 130:187663
TITLE: Mechanism of hydrogenation of fullerite-metallic compositions
AUTHOR(S): Tarasov, B. P.
CORPORATE SOURCE: Institute of New Chemical Problems, Russian Academy of Sciences, Chernogolovka, Russia
SOURCE: Russian Journal of General Chemistry (Translation of Zhurnal Obshchei Khimii) (1998), 68(8), 1183-1186
CODEN: RJGCEK; ISSN: 1070-3632
PUBLISHER: MAIK Nauka/Interperiodica Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Hydrogen-sorbing metals (Rd, V), intermetallics (LaNi5, LaNi4.65Mn0.35, CeCo3), and their hydrides can catalyze hydrogenation of solid fullerenes

(C60, C70). The efficiency of hydrogenation of fullerene-metallic compns. is increased by their mech. treatment and by repetition of the "heating above the point of H2 release from the metal hydride-cooling below the point of H2 absorption by the metal phase" cycles. The chemical transformations in the fullerite-metal phase-hydrogen system are discussed.

IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); USES (Uses)
(mechanism of hydrogenation of fullerite-metallic compns.)
RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

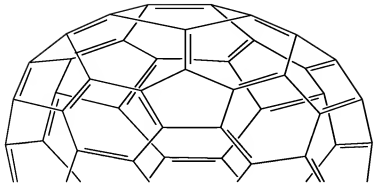
Pd

IT 99685-96-8, Fullerene(c60) 115383-22-7, Fullerene(c70) 131159-39-2, Fullerite
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(mechanism of hydrogenation of fullerite-metallic compns.)
RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



RN 115383-22-7 HCAPLUS
CN [5,6]Fullerene-C70-D5h(6) (CA INDEX NAME)

PAGE 1-A



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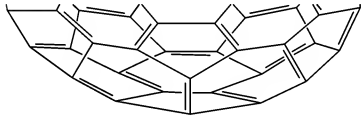


RN 131159-39-2 HCAPLUS
CN Fullerite (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
CC 67-3 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
IT Hydrogenation
Hydrogenation catalysts
(mechanism of hydrogenation of fullerite-metallic compns.)
IT 7440-05-3, Palladium, uses 7440-62-2, Vanadium, uses 12185-78-3 12196-72-4 220639-58-7
RL: CAT (Catalyst use); USES (Uses)
(mechanism of hydrogenation of fullerite-metallic compns.)
IT 1333-74-0, Hydrogen, reactions 99685-96-8, Fullerene(c60) 115383-22-7, Fullerene(c70) 131159-39-2, Fullerite
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(mechanism of hydrogenation of fullerite-metallic compns.)
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 9 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1998:638837 HCAPLUS Full-text
DOCUMENT NUMBER: 129:315952
TITLE: Selective hydrogenation of acetylenic alcohols in the presence of the [60]-fullerene-Pd-phosphine complex
AUTHOR(S): Sulman, E.; Matveeva, V.; Semagina, N.; Yanov, I.; Bashilov, V.; Sokolov, V.
CORPORATE SOURCE: Dept. of Biotechnology and Chemistry, Tver Technical University, Tver, 170026, Russia
SOURCE: Proceedings - Electrochemical Society ( 1998), 98-8(Recent Advances in the Chemistry and Physics of Fullerenes and Related Materials), 1186-1195
CODEN: PESODO; ISSN: 0161-6374
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

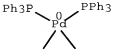
AB The catalytic properties of the [60]-fullerene-Pd-phosphine complex η2-C60Pd(PPh3)2 were investigated in selective hydrogenation of dehydrolinalool triple bond to linalool double one. The kinetic model was offered on the basis of the data obtained. The catalytic properties of the homogeneous catalyst were supposed to be like those of enzymes. The catalytic activity of the heterogeneous catalyst created on the basis of the complex investigated was ten times higher than the activity of the traditional Pd -containing catalysts. The influence of the solvent nature on the catalyst's activity was studied. The highest rate of hydrogenation was observed in methanol.

IT 138955-37-0, η2-(Fullerene-C60)bis(triphenylphosphine)palladium
RL: CAT (Catalyst use); USES (Uses)
(selective hydrogenation of acetylenic alcs. in presence of fullerene-palladium-phosphine complex)

RN 138955-37-0 HCAPLUS

CN Palladium, [(1,9-η)-[5,6]fullerene-C60-Ih]bis(triphenylphosphine)- (9CI) (CA INDEX NAME)





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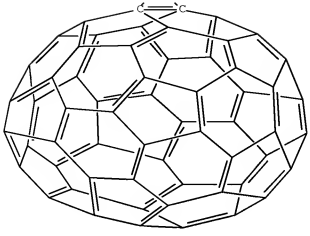


CC 23-7 (Aliphatic Compounds)
Section cross-reference(s): 22, 29
ST hydrogenation catalyst acetylenic alc fullerene palladium; kinetics hydrogenation acetylenic alc palladium fullerene; solvent effect hydrogenation acetylenic alc palladium; dehydrolinalool selective hydrogenation fullerene palladium catalyst; linalool dihydro prepn
IT Hydrogenation catalysts
Hydrogenation kinetics
Solvent effect
(selective hydrogenation of acetylenic alcs. in presence of fullerene-palladium-phosphine complex)
IT 133955-37-8, η2-(Fullerene-C60)bis(triphenylphosphine)palladium
RL: CAT (Catalyst use); USES (Uses)
(selective hydrogenation of acetylenic alcs. in presence of fullerene-palladium-phosphine complex)
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 10 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1998:212803 HCAPLUS Full-text
DOCUMENT NUMBER: 128:244070
TITLE: New studies in fullerene chemistry. Some Russian platinum metal fullerene research
AUTHOR(S): Sokolov, Viatcheslav I.; Bashilov, Vasily V.
CORPORATE SOURCE: Institute of Organoelement Compounds, Russian Academy of Sciences, Moscow, Russia
SOURCE: Platinum Metals Review (1998), 42(1), 18-24
CODEN: PTMRA3; ISSN: 0032-1400
PUBLISHER: Johnson Matthey Public Ltd. Co.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review with 24 refs. Studies on fullerene chemical carried out in the Laboratory of Organometallic Stereochem. at INEOS, Moscow, are briefly reported. These include work with Pt metal complexes, in particular, on novel

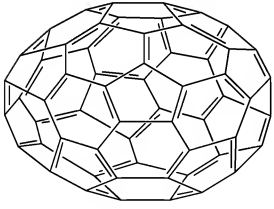
methods of preparing η2-fullerene-C60 and -C70 complexes of Pt, Pd, Rh and Ir. The use of Hg-Pt bimetallic compds., RHg-PtL2X, as a source of the PtL2 moiety to be transferred onto a (6:6) double bond in fullerenes is reported. Bis(aryl)Pt(II) complexes reacted similarly. Other products of this reaction are discussed. The lst optically active organometallic fullerenes CnM[(+)-DIOP], where n = 60 or 70 and M = Pd or Pt, also were prepared and their CD spectra studied. The mol. structures for C60Pd(PPh3)2 and C60Pt[(+)-DIOP] were solved. Higher catalytic activity for the hydrogenation of a triple to a double bond was observed with C60Pd(PPh3)2 adsorbed on porous C than with Pd/porous C.

IT 7440-05-3DP, Palladium, fullerene-C60 and -C70 phosphine complexes, preparation 99685-96-8DP, Fullerene-C60, platinum group metal complexes 115383-22-7DP, Fullerene-C70, platinum group metal complexes 138955-37-0P , (η2-Fullerene-C60)bis(triphenylphosphine)palladium RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(preparation, structure, and hydrogenation catalytic activity of platinum metal fullerene phosphine complexes)

RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

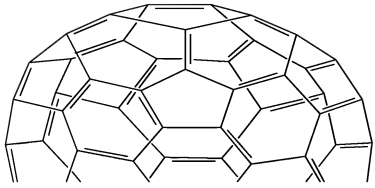
Pd

RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



RN 115383-22-7 HCAPLUS
CN [5,6]Fullerene-C70-D5h(6) (CA INDEX NAME)

PAGE 1-A



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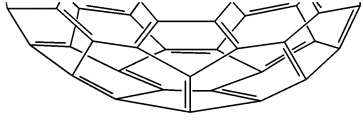
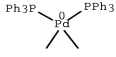


RN 138955-37-0 HCAPLUS
CN Palladium, [(1,9-η)-[5,6]fullerene-C60-Ih]bis(triphenylphosphine)- (9CI) (CA INDEX NAME)

PAGE 1-A



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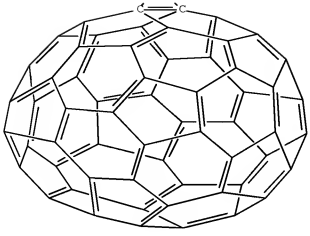


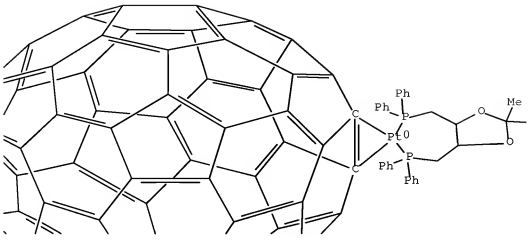
IT 184770-31-8P, ((+)-(4,5-Bis(diphenylphosphinomethyl)-2,2-dimethyl-1,3-dioxolane))(η2-fullerene-C60)platinum
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation, structure, and hydrogenation catalytic activity of platinum metal fullerene phosphine complexes)

RN 184770-31-8 HCAPLUS

CN Platinum, [[(2,2-dimethyl-1,3-dioxolane-4,5-diyl)bis(methylene)]bis[diphenylphosphine-κP]][(1,9-η)-[5,6]fullerene-C60-Ih]-, (4S-trans)- (9CI) (CA INDEX NAME)

PAGE 1-A

PAGE 1-B

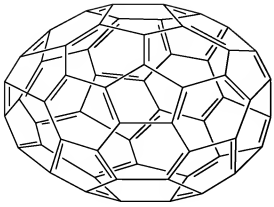



PAGE 1-C

Me

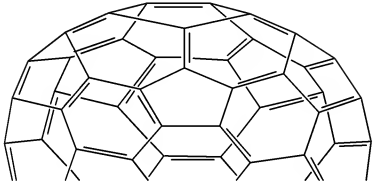
PAGE 2-B

IT 99685-96-8, Fullerene-C60 115383-22-7, Fullerene-C70
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction in preparation of platinum metal fullerene phosphine complexes)
RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)

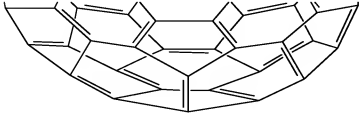


RN 115383-22-7 HCAPLUS
CN [5,6]Fullerene-C70-D5h(6) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



CC 29-0 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 67, 75, 78
ST review platinum metal fullerene phosphine complex; palladium

fullerene phosphine complex prepn review; platinum fullerene phosphine complex prepn review; rhodium fullerene phosphine complex prepn review; iridium fullerene phosphine complex prepn review; mercury platinum complex reaction fullerene review; aryl platinum reaction fullerene review; mol structure palladium platinum fullerene review; DIOP fullerene palladium platinum complex review; hydrogenation catalyst palladium phosphine fullerene review

IT Platinum-group metal complexes
RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(fullerene-C60 and -C70 complexes; preparation, structure, and hydrogenation catalytic activity of platinum metal fullerene phosphine complexes)

IT Hydrogenation catalysts
(palladium fullerene phosphine complex for hydrogenation of a triple to a double bond)

IT Fullerenes
RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(platinum metal complexes; preparation, structure, and hydrogenation catalytic activity of platinum metal fullerene phosphine complexes)

IT 7440-05-3DP, Palladium, fullerene-C60 and -C70 phosphine complexes, preparation 99685-96-8DP, Fullerene-C60, platinum group metal complexes 115383-22-7DP, Fullerene-C70, platinum group metal complexes 138955-37-0P, (η2-Fullerene-C60)bis(triphenylphosphine)palladium
RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(preparation, structure, and hydrogenation catalytic activity of platinum metal fullerene phosphine complexes)

IT 7440-06-4DP, Platinum, fullerene-C60 and -C70 phosphine complexes, preparation 184770-31-8P, ((+)-(4,5-Bis(diphenylphosphinomethyl)-2,2-dimethyl-1,3-dioxolane))(η2-fullerene-C60)platinum
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation, structure, and hydrogenation catalytic activity of platinum metal fullerene phosphine complexes)

IT 7439-88-5DP, Iridium, fullerene-C60 and -C70 phosphine complexes, preparation 7440-16-6DP, Rhodium, fullerene-C60 and -C70 phosphine complexes, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation, structure, and hydrogenation catalytic activity of platinum metal fullerene phosphine complexes)

IT 99685-96-8, Fullerene-C60 115383-22-7, Fullerene-C70
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction in preparation of platinum metal fullerene phosphine complexes)

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 11 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:439119 HCAPLUS Full-text
DOCUMENT NUMBER: 127:153454
TITLE: Preparation, characterization and

catalytic hydrogenation
properties of palladium supported on C60

AUTHOR(S): Yu, Rongqing; Liu, Qiping; Tan, Kuang-Lee; Xu, Guo-Qin; Ng, Siu Choon; Chan, Hardy S. O.; Hor, T. S. Andy

CORPORATE SOURCE: Department of Chemistry, Faculty of Science, National University of Singapore, Kent Ridge, 119260, Singapore

SOURCE: Journal of the Chemical Society, Faraday Transactions (1997), 93(12), 2207-2210
CODEN: JCFTEV; ISSN: 0956-5000

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A C60-supported Pd catalyst has been prepared by reaction between C60 and Pd(OAc)2(PPh3)2 in toluene, to give the complex C60[Pd(OAc)2(PPh3)]3, followed by H2 treatment at 523 K for 4 h. Catalytic quantities (1 mol%) promote hydrogenation of diphenylacetylene, phenylacetylene, cyclohexene and hex-1-ene to give 100% conversion to 1,2-diphenylethane, phenylethane, cyclohexane and hexane within 18, 13, 21 and 12 min, resp. Hydrogenation of the same substrates under similar conditions using Pd on activated charcoal (10%) as catalyst gives similar yields but at a longer time (20, 18, 27 and 15 min, resp.). Both the Pd-C60 catalyst and its precursor were characterized by thermogravimetry (TG), FTIR, mass spectrometry (MS), powder XRD, XPS and transmission electron microscopy (TEM).

IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); PRP (Properties); USES (Uses)
(preparation, characterization and catalytic hydrogenation properties of palladium supported on fullerene C60)

RN 7440-05-3 HCAPLUS

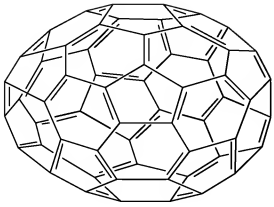
CN Palladium (CA INDEX NAME)

Pd

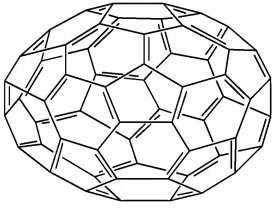
IT 99685-96-8, Fullerene(C60
RL: CAT (Catalyst use); PRP (Properties); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(preparation, characterization and catalytic hydrogenation properties of palladium supported on fullerene C60)

RN 99685-96-8 HCAPLUS

CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



IT 99685-96-8DP, Fullerene-C60, complex with palladium acetate triphenylphosphine compds.
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation, characterization and catalytic hydrogenation properties of palladium supported on fullerene C60)
RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 23, 24, 25, 78
ST palladium fullerene C60 hydrogenation catalyst prepn; characterization palladium fullerene C60 hydrogenation catalyst
IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); PRP (Properties); USES (Uses)
(preparation, characterization and catalytic hydrogenation properties of palladium supported on fullerene C60)
IT 99685-96-8, Fullerene(C60
RL: CAT (Catalyst use); PRP (Properties); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(preparation, characterization and catalytic

hydrogenation properties of palladium supported on fullerene C60)

IT 64-19-7DP, Acetic acid, complex with palladium triphenylphosphine and fullerene, reactions 603-35-0DP, Triphenylphosphine, complex with palladium acetate and fullerene 7440-05-3DP, Palladium, complex with fullerene acetate and triphenylphosphine, reactions 99685-96-8DP, Fullerene-C60, complex with palladium acetate triphenylphosphine compds.
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation, characterization and catalytic hydrogenation properties of palladium supported on fullerene C60)

IT 110-83-8, Cyclohexene, reactions 501-65-5, Diphenylacetylene 536-74-3, Phenylacetylene 592-41-6, Hex-1-ene, reactions 1333-74-0, Hydrogen, reactions 14588-08-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation, characterization and catalytic hydrogenation properties of palladium supported on fullerene C60)

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 12 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:289239 HCAPLUS Full-text
DOCUMENT NUMBER: 126:317496
TITLE: Pd-fullerene complex for selective hydrogenation of dehydrolinalool
AUTHOR(S): Sul'man, E. M.; Matveeva, V. G.; Bashilov, V. V.; Sokolov, V. I.
CORPORATE SOURCE: Tver State Technical University, Tver, 170000, Russia
SOURCE: Kinetics and Catalysis (Translation of Kinetika i Kataliz) (1997), 38(2), 251-252
CODEN: KICAA8; ISSN: 0023-1584
PUBLISHER: MAIK Nauka/Interperiodica
DOCUMENT TYPE: Journal
LANGUAGE: English

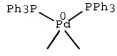
AB The Pd phosphine complex with fullerene C60 (η2-C60 Pd(PPh3)2, I) is used as the catalyst for homogeneous and heterogeneous hydrogenation of 3,7-dimethylocta-6-en-1-yn-3-ol (dehydrolinalool, DHL). In all cases, the triple bond of DHL is hydrogenated into the double bond in the presence of the palladium-fullerene complex. The Sibunit-supported complex I exhibits the highest catalytic activity, which is by an order of magnitude higher than that of Pd-Sibunit.

IT 138955-37-0
RL: CAT (Catalyst use); USES (Uses)
(Pd-fullerene complex catalyst for selective hydrogenation of dehydrolinalool)

RN 138955-37-0 HCAPLUS

CN Palladium, [(1,9-η)-[5,6]fullerene-C60-Ih]bis(triphenylphosphine)- (9CI) (CA INDEX NAME)

PAGE 1-A

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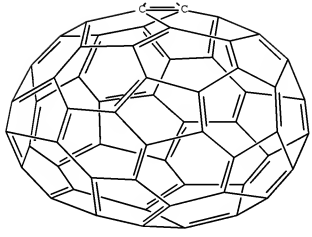


CC 30-10 (Terpenes and Terpenoids)
ST palladium fullerene complex hydrogenation catalyst dehydrolinalool
IT Hydrogenation catalysts
(Pd-fullerene complex catalyst for selective hydrogenation of dehydrolinalool)
IT 138955-37-0
RL: CAT (Catalyst use); USES (Uses)
(Pd-fullerene complex catalyst for selective hydrogenation of dehydrolinalool)
IT 29171-20-8, Dehydrolinalool
RL: RCT (Reactant); RACT (Reactant or reagent)
(Pd-fullerene complex catalyst for selective hydrogenation of dehydrolinalool)
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN

THE RE FORMAT

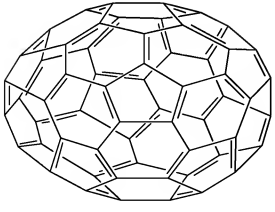
L29 ANSWER 13 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:137270 HCAPLUS Full-text
DOCUMENT NUMBER: 126:250978
TITLE: Catalytic hydrogenation of C60 fullerene
AUTHOR(S): Drelinkiewicz, A.; Byszewski, P.; Bielanski, A.
CORPORATE SOURCE: Faculty of Chemistry, Jagiellonian University, Krakow, 30-060, Pol.
SOURCE: Reaction Kinetics and Catalysis Letters (1996), 59(1), 19-27
CODEN: RKCLAU; ISSN: 0304-4122
PUBLISHER: Akademiai Kiado
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The catalytic hydrogenation of C60 with H2 or by hydrogen transfer reactions using Pd/SiO2, Rh/Al2O3 and Ru/Al2O3 was studied. Hydrogen donors were cyclohexane, tetralin and decalin. The final products containing partially hydrogenated C60 fullerene C60H42 - C60H46 were characterized by FTIR, UV and NMR methods.

IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); USES (Uses)
(catalytic hydrogenation of C60 fullerene)
RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

Pd

IT 99685-96-8, Fullerene C60
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalytic hydrogenation of C60 fullerene)
RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)

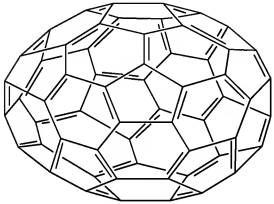


IT 130797-14-7P, Octadecahydro-[5,6]Fullerene-C60-Ih
130797-17-0P, Fullerene hydride (C60H36)
146998-94-9P, Dotetracontahydro-[5,6]Fullerene-C60-Ih
146998-96-1P, Hexatetracontahydro-[5,6]Fullerene-C60-Ih,

146998-97-2P, Octatetracontahydro-[5,6]Fullerene-C60-Ih
RL: SPN (Synthetic preparation); PREP (Preparation)
(catalytic hydrogenation of C60 fullerene)
RN 130797-14-7 HCAPLUS
CN [5,6]Fullerene-C60-Ih, octadecahydro- (CA INDEX NAME)

CM 1

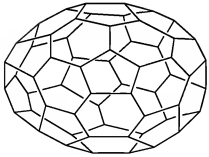
CRN 99685-96-8
CMF C60



RN 130797-17-0 HCAPLUS
CN [5,6]Fullerene-C60-Ih, hexatriacontahydro- (CA INDEX NAME)

CM 1

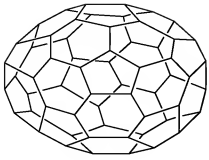
CRN 136374-40-8
CMF C60 H60



RN 146998-94-9 HCAPLUS
CN [5,6]Fullerene-C60-Ih, dotetracontahydro- (9CI) (CA INDEX NAME)

CM 1

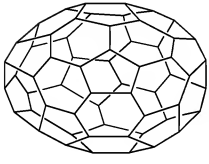
CRN 136374-40-8
CMF C60 H60



RN 146998-96-1 HCAPLUS
CN [5,6]Fullerene-C60-Ih, hexatetracontahydro- (9CI) (CA INDEX NAME)

CM 1

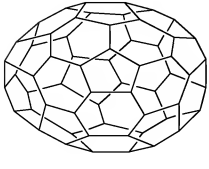
CRN 136374-40-8
CMF C60 H60



RN 146998-97-2 HCAPLUS
CN [5,6]Fullerene-C60-Ih, octatetracontahydro- (9CI) (CA INDEX NAME)

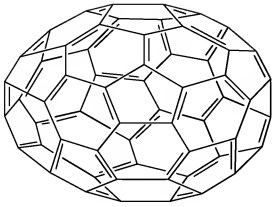
CM 1

CRN 136374-40-8
CMF C60 H60



CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
IT Hydrogenation
(catalytic hydrogenation of C60 fullerene)
IT 7440-05-3, Palladium, uses 7440-16-6, Rhodium, uses
7440-18-8, Ruthenium, uses
RL: CAT (Catalyst use); USES (Uses)
(catalytic hydrogenation of C60 fullerene)
IT 99685-96-8, Fullerene C60
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalytic hydrogenation of C60 fullerene)
IT 130797-14-7P, Octadecahydro-[5,6]Fullerene-C60-Ih
130797-17-0P, Fullerene hydride (C60H36)
146998-94-9P, Dotetracontahydro-[5,6]Fullerene-C60-Ih
146998-96-1P, Hexatetracontahydro-[5,6]Fullerene-C60-Ih,
146998-97-2P, Octatetracontahydro-[5,6]Fullerene-C60-Ih
RL: SPN (Synthetic preparation); PREP (Preparation)
(catalytic hydrogenation of C60 fullerene)
IT 91-17-8, Decalin 110-82-7, Cyclohexane, reactions 119-64-2,
Tetralin
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrogen donor; catalytic hydrogenation of
C60 fullerene)
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

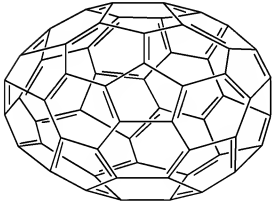
L29 ANSWER 14 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1996:606478 HCAPLUS Full-text
DOCUMENT NUMBER: 125:275291
TITLE: Direct and catalytic hydrogenation of buckminsterfullerene C60
AUTHOR(S): Sui, Yunlong; Qian, Jiuxin; Zhang, Jing; Zhou, Xihuang; Gu, Zhennan; Wu, Yi; Fu, Hua; Wang, Jingzun
CORPORATE SOURCE: Dep. of Chemistry, Peking University, Beijing, 100871, Peop. Rep. China
SOURCE: Fullerene Science and Technology (1996), 4(5), 813-818
CODEN: FTECEG; ISSN: 1064-122X
PUBLISHER: Dekker
DOCUMENT TYPE: Journal
LANGUAGE: English
AB C60H18 was obtained by direct hydrogenation of C60 at 400° and 80 atmospheric C60 was hydrogenated to C60H36 as a main product in the presence of Pd/C catalyst at 180° and 30-70 atmospheric C60H36 is unstable in dichloromethane and some other organic solvents.
IT 99685-96-8, Buckminsterfullerene c60
RL: RCT (Reactant); RACT (Reactant or reagent)
(direct and catalytic hydrogenation of buckminsterfullerene C60)
RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



IT 130797-14-7P 130797-17-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(direct and catalytic hydrogenation of buckminsterfullerene C60)
RN 130797-14-7 HCAPLUS
CN [5,6]Fullerene-C60-Ih, octadecahydro- (CA INDEX NAME)

CM 1

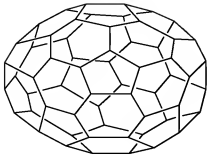
CRN 99685-96-8
CMF C60



RN 130797-17-0 HCAPLUS
CN [5,6]Fullerene-C60-Ih, hexatriacontahydro- (CA INDEX NAME)

CM 1

CRN 136374-40-8
CMF C60 H60



CC 24-8 (Alicyclic Compounds)
IT Hydrogenation
(direct and catalytic hydrogenation of buckminsterfullerene C60)
IT 99685-96-8, Buckminsterfullerene c60
RL: RCT (Reactant); RACT (Reactant or reagent)
(direct and catalytic hydrogenation of buckminsterfullerene C60)
IT 130797-14-7P 130797-17-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(direct and catalytic hydrogenation of buckminsterfullerene C60)

L29 ANSWER 15 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1996:596846 HCAPLUS Full-text
DOCUMENT NUMBER: 125:329022
TITLE: Synthesis of C60[Pd(PPh3)2] as catalyst for hydrogenation of 1-heptene
AUTHOR(S): Liu, Ye; Zhao, Zhuanyun; Liu, Shengming; Yin, Yuanqi
CORPORATE SOURCE: Lanzhou Inst. Chemical Physics, Chinese Academy Sciences, Lanzhou, 730000, Peop. Rep. China
SOURCE: Fenzi Cuihua (1996), 10(4), 257-262
CODEN: FECUEN; ISSN: 1001-3555
PUBLISHER: Zhongguo Kexueyuan Lanzhou Huaxue Wuli Yanjiuso
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
OTHER SOURCE(S): CASREACT 125:329022
AB The title Pd complex of C60 (I) was prepared in N2 atmospheric free of H2O and O2 and then used as a catalyst for the hydrogenation of 1-heptene. Classical Pd complexes generally catalyze alkylation and double bond isomerization during the hydrogenation of olefins. However, I uniquely catalyzes the cyclization of 1-heptene to 1,2-dimethylcyclopentane. The cyclization catalytic activity probably comes from I, not from the mech. mixture of C60 and Pd(PPh3)4.
IT 138955-37-0P, (Fullerene-C60)(bis(triphenylphosphine) palladium)
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation as catalyst for cyclization and hydrogenation of heptene)
RN 138955-37-0 HCAPLUS
CN Palladium, [(1,9-η)-[5,6]fullerene-C60-Ih]bis(triphenylphosphine)- (9CI) (CA INDEX NAME)

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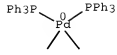


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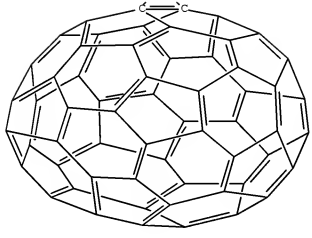
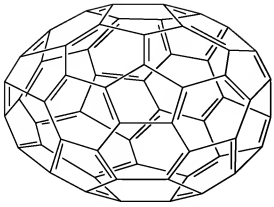



IT 99685-96-8, C60 Fullerene
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with palladium phosphine complex)
RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



CC 29-13 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 23, 67, 78
ST palladium fullerene diphosphine prepn hydrogenation catalyst; heptene hydrogenation catalyst
palladium fullerene phosphine; cyclization catalyst
heptene palladium fullerene phosphine
IT Hydrogenation catalysts
Ring closure catalysts
(palladium fullerene phosphine complex for hydrogenation and cyclization of heptene)
IT 592-76-7, 1-Heptene
RL: RCT (Reactant); RACT (Reactant or reagent)
(palladium fullerene phosphine complex catalyzed hydrogenation and cyclization of heptene)
IT 142-82-5P, Heptane, preparation 2452-99-5P, 1,2-Dimethylcyclopentane
RL: SPN (Synthetic preparation); PREP (Preparation)
(palladium fullerene phosphine complex catalyzed hydrogenation and cyclization of heptene)
IT 6443-92-1P, cis-2-Heptene 14686-13-6P, trans-2-Heptene
RL: SPN (Synthetic preparation); PREP (Preparation)
(palladium phosphine complex catalyzed hydrogenation and isomerization of heptene)
IT 138955-37-0P, (Fullerene-C60)(bis(triphenylphosphine) palladium)
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation as catalyst for cyclization and hydrogenation of heptene)
IT 14221-01-3, Tetrakis(triphenylphosphine)palladium
RL: CAT (Catalyst use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(reaction with fullerene and catalyst for hydrogenation and isomerization of heptene)
IT 99685-96-8, C60 Fullerene
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with palladium phosphine complex)

L29 ANSWER 16 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1995:857890 HCAPLUS Full-text
DOCUMENT NUMBER: 124:86174
TITLE: Catalytic hydrogenation of fullerene

AUTHOR(S): Dong, Guo Xiao; Wang, Tie Jun; Li, Ji Sheng
CORPORATE SOURCE: Inst. Chem., Acad. Sin., Beijing, 100080, Peop. Rep. China
SOURCE: Chinese Chemical Letters (1995), 6(9), 773-4
CODEN: CCLEE7
PUBLISHER: Chinese Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Hydrogenation of fullerene catalyzed by palladium was studied. FD-Ms spectrum exhibited that C60H18 and C60H20, among the mixture of adducts C60H2n (n = 1 to 26), were the main products. The mechanism for the hydrogenation of fullerene under our conditions is described.

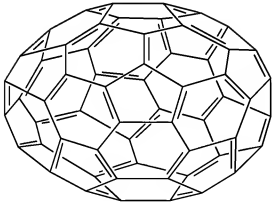
IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); USES (Uses)
(catalytic hydrogenation of fullerene)

RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

Pd

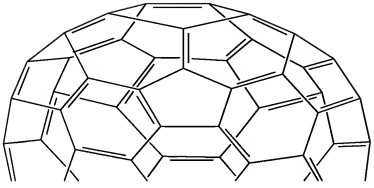
IT 99685-96-8, C60 Fullerene 115383-22-7, C70 Fullerene
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(catalytic hydrogenation of fullerene)

RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



RN 115383-22-7 HCAPLUS
CN [5,6]Fullerene-C70-D5h(6) (CA INDEX NAME)

PAGE 1-A



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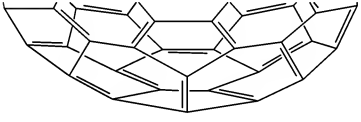
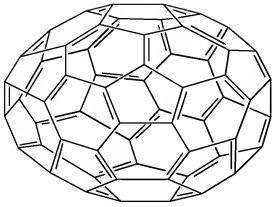


IT 130797-14-7P 148754-33-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(catalytic hydrogenation of fullerene)
RN 130797-14-7 HCAPLUS
CN [5,6]Fullerene-C60-Ih, octadecahydro- (CA INDEX NAME)

CM 1

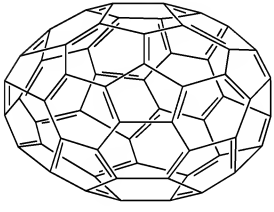
CRN 99685-96-8
CMF C60



RN 148754-33-0 HCAPLUS
CN [5,6]Fullerene-C60-Ih, eicosahydro- (9CI) (CA INDEX NAME)

CM 1

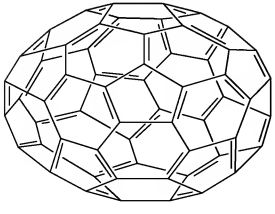
CRN 99685-96-8
CMF C60



CC 22-7 (Physical Organic Chemistry)
IT Hydrogenation
(catalytic hydrogenation of fullerene)
IT Hydrogenation catalysts
(palladium-catalyzed hydrogenation of fullerene)
IT Hydrogenation
(transfer, catalytic transfer hydrogenation of fullerene)
IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); USES (Uses)
(catalytic hydrogenation of fullerene)
IT 99685-96-8, C60 Fullerene 115383-22-7, C70 Fullerene
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(catalytic hydrogenation of fullerene)

IT 139797-14-7P 148754-33-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(catalytic hydrogenation of fullerene)
IT 64-18-6, Formic acid, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(catalytic transfer hydrogenation of fullerene)

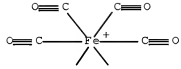
L29 ANSWER 17 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1994:498265 HCAPLUS Full-text
DOCUMENT NUMBER: 121:98265
TITLE: Synthesis and characterization of transition metal fullerides
AUTHOR(S): Werner, Harald; Wohlers, Michael; Belz, Thilo; Schloegl, Robert
CORPORATE SOURCE: Inst. Anorg. Chem., Univ. Frankfurt, Frankfurt, W-6000, Germany
SOURCE: Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals (1994), 245, 295-300
CODEN: MCLCE9; ISSN: 1058-725X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Complexes of Group VIII metals in low oxidation nos. react in solution with fullerene to yield structurally ill-defined compds. with reproducible compns. and properties. A variety of characterization methods (anal., XRD, FTIR, TPD) indicate that the transition metals are located in the interstices of the fullerene lattice being distorted by the volume of the oligonuclear complexes with partly coordinated residual ligands. The fullerene mols. complete the coordination shells of these catalytically active materials.
IT 99685-96-8DP, Fullerene-60, intercalation compound with ruthenium carbonyl 139869-52-6P, Fullerene-60 compound with tetracarbonyliron(1+)
RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(formation and decarbonylation of)
RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



RN 139869-52-6 HCAPLUS
CN Iron(1+), tetracarbonyl[(1,9-η)-[5,6]fullerene-C60-Ih]- (9CI)

(CA INDEX NAME)

PAGE 1-A



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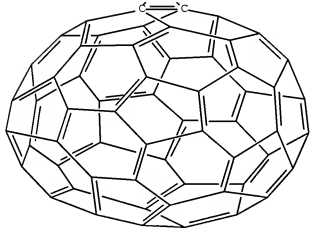
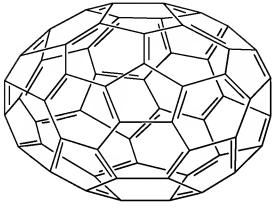


IT 156637-86-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and hydrogenation catalytic activity of)
RN 156637-86-4 HCAPLUS
CN [5,6]Fullerene-C60-Ih, compd. with palladium (1:3) (9CI) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| C60 | 1 | 99685-96-8 |
| Pd | 3 | 7440-05-3 |

IT 99685-96-8, Fullerene-60
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with iron and ruthenium carbonyls and palladium bis(benzylidene)acetone complex, fullerides by)
RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



CC 78-3 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 29, 67
IT Hydrogenation catalysts
(palladium fulleride, for cyclohexene)
IT 7440-18-8DP, Ruthenium, carbonyl, intercalation compound with fullerene 99685-96-8DP, Fullerene-60, intercalation compound with ruthenium carbonyl 139869-52-6P, Fullerene-60 compound with tetracarbonyliron(1+)
RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(formation and decarbonylation of)
IT 156627-86-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and hydrogenation catalytic activity of)
IT 99685-96-8, Fullerene-60
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with iron and ruthenium carbonyls and palladium bis(benzylidene)acetone complex, fullerides by)

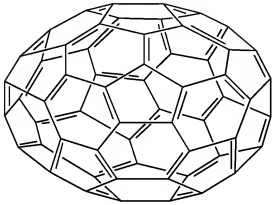
L29 ANSWER 18 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1994:434573 HCAPLUS Full-text
DOCUMENT NUMBER: 121:34573
TITLE: Study on the catalytic hydrogenation property of C60 fullerene-supported palladium
AUTHOR(S): Yuan, Guoqing; Liu, Zhongyang; Pan, Pinglai; Jiang, Dazhi; Qin, Wei; Zhuo, Xihuang; LI, Fumian
CORPORATE SOURCE: Inst. Chem., Acad. Sin., Beijing, 100080, Peop. Rep. China
SOURCE: Gaojishu Tongxun (1992), 2(10), 6-8
CODEN: GTONE8; ISSN: 1002-0470
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB The title catalyst showed a much greater catalytic activity towards hydrogenation of 1-heptene, Me methacrylate, crotonaldehyde, acrylic acid, and nitro compds. than Pd/C, Pd/SiO2, Pd/SiO2-graphite, etc., with an initial H absorption rate of 210.1 mL H/mmol Pd-min, vs. 18.6, 10.5, and 5.4 mL H/mmol Pd-min, resp. Within the substrate series, the catalytic activity followed the same order. H bonding and steric hindrance on activity were discussed.

IT 99685-96-8, [5,6]Fullerene-C60-Ih
RL: RCT (Reactant); RACT (Reactant or reagent)
(palladium catalyst support, for hydrogenation of olefins)

RN 99685-96-8 HCAPLUS

CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



CC 22-7 (Physical Organic Chemistry)
Section cross-reference(s): 67

ST fullerene palladium catalyst hydrogenation olefin

IT Nitro compounds
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrogenation of, palladium on C60-fullerene catalyst for)

IT Hydrogenation catalysts
(palladium on C60-fullerene, for olefins)

IT 7440-05-3, Palladium, uses
RL: USES (Uses)
(catalyst supported on C60-fullerene, for hydrogenation of olefins)

IT 79-10-7, Acrylic acid, reactions 80-62-6, Methyl methacrylate 592-76-7, 1-Heptene 4170-30-3, Crotonaldehyde
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrogenation of, palladium on C60-fullerene catalyst for)

IT 99685-96-8, [5,6]Fullerene-C60-Ih
RL: RCT (Reactant); RACT (Reactant or reagent)
(palladium catalyst support, for hydrogenation of olefins)

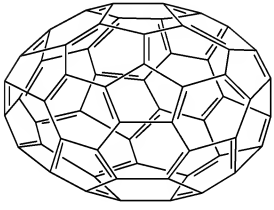
L29 ANSWER 19 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1994:244170 HCAPLUS Full-text
DOCUMENT NUMBER: 120:244170
TITLE: Catalytic hydrogenation mechanism of fullerenes in toluene solution

AUTHOR(S): Shigematsu, Kazuyoshi; Abe, Kazuaki; Mitani, Masahiro; Tanaka, Koji
CORPORATE SOURCE: Cent. Res. Lab., Idemitsu Kosan Co., Ltd., Sodegaura, 299-02, Japan
SOURCE: Chemistry Express (1993), 8(7), 483-6
CODEN: CHEXEU; ISSN: 0911-9566
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 120:244170

AB The catalytic hydrogenation of fullerenes was studied in the presence of various metal catalysts under several conditions. Fullerenes were catalytically hydrogenated in toluene solution in the presence of Ru/carbon, Pd/carbon, Ni/diatomaceous earth and Pt/carbon. Ru/C was the most active of the catalysts used.

IT 99685-96-8, Fullerene C60 115383-22-7, Fullerene C70
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalytic hydrogenation of)

RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



RN 115383-22-7 HCAPLUS
CN [5,6]Fullerene-C70-D5h(6) (CA INDEX NAME)

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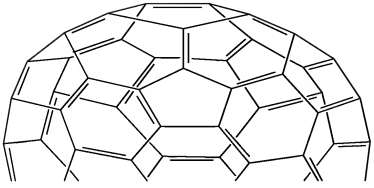

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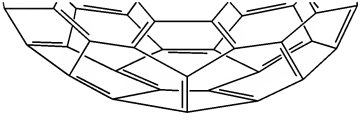
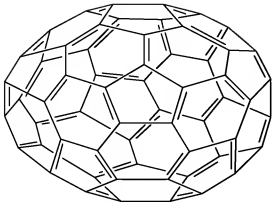


IT 130797-14-7P 130797-17-0P 146549-68-0P
146556-65-2P 151547-64-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 130797-14-7 HCAPLUS
CN [5,6]Fullerene-C60-Ih, octadecahydro- (CA INDEX NAME)

CM 1

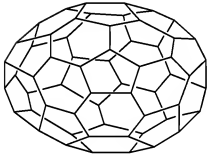
CRN 99685-96-8
CMF C60



RN 130797-17-0 HCAPLUS
CN [5,6]Fullerene-C60-Ih, hexatriacontahydro- (CA INDEX NAME)

CM 1

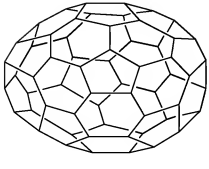
CRN 136374-40-8
CMF C60 H60



RN 146549-68-0 HCAPLUS
CN [5,6]Fullerene-C60-Ih, tetracontahydro- (9CI) (CA INDEX NAME)

CM 1

CRN 136374-40-8
CMF C60 H60



RN 146556-65-2 HCAPLUS
CN [5,6]Fullerene-C70-D5h(6), octatriacontahydro- (9CI) (CA INDEX NAME)

CM 1

CRN 146556-63-0
CMF C70 H70

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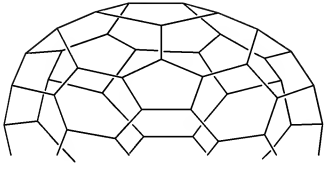

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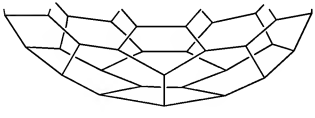
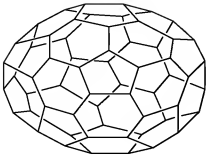


RN 151547-64-7 HCAPLUS
CN [5,6]Fullerene-C60-Ih, triacontahydro- (9CI) (CA INDEX NAME)

CM 1

CRN 136374-40-8
CMF C60 H60



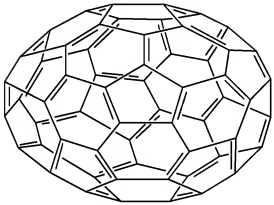
CC 24-8 (Alicyclic Compounds)
Section cross-reference(s): 68
ST fullerene hydrogenation catalytic; ruthenium catalyst hydrogenation fullerene; platinum catalyst hydrogenation fullerene; nickel catalyst hydrogenation fullerene; palladium catalyst hydrogenation fullerene
IT Hydrogenation catalysts
(ruthenium, nickel, palladium and platinum, for fullerenes)
IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-18-8, Ruthenium, uses
RL: USES (Uses)
(catalyst containing carbon and, for hydrogenation of fullerene)
IT 99685-96-8, Fullerene C60 115383-22-7, Fullerene C70
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalytic hydrogenation of)
IT 130797-14-7P 130797-17-0P 146549-68-0P 146556-65-2P 151547-64-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

L29 ANSWER 20 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1994:174521 HCAPLUS Full-text
DOCUMENT NUMBER: 120:174521
TITLE: Catalytic hydrogenation of fullerenes in the presence of metal catalysts in toluene solution
AUTHOR(S): Shigematsu, Kazuyoshi; Abe, Kazuaki; Mitani, Masahiro; Tanaka, Koji
CORPORATE SOURCE: Cent. Res. Lab., Idemitsu Kosan Co., Ltd., Sodegaura, 299-02, Japan
SOURCE: Fullerene Science and Technology (1993), 1(3), 309-18
CODEN: FTECEG; ISSN: 1064-122X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The catalytic hydrogenation of fullerenes was studied in the presence of various metal catalysis in toluene solution under several conditions. Fullerenes were found to be catalytically hydrogenated in toluene solution in the presence of the Ru/carbon, Pd/carbon, Ni/diatomaceous earth or Pt/carbon as the catalysts. The reactivity of catalytic hydrogenation of the Ru/C was the highest among the metal catalysts.

IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); USES (Uses)
(catalysts from carbon and, for fullerene hydrogenation)
RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

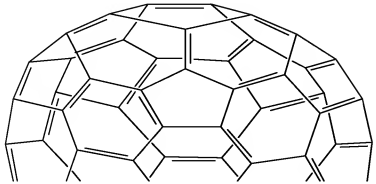
Pd

IT 99685-96-8, Fullerene(c60) 115383-22-7, Fullerene(c70)
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrogenation of, supported transition metal catalysts for)
RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



RN 115383-22-7 HCAPLUS
CN [5,6]Fullerene-C70-D5h(6) (CA INDEX NAME)

PAGE 1-A



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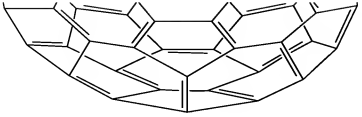
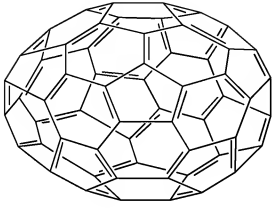


CC 67-2 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
ST supported transition metal fullerene hydrogenation catalyst
IT Hydrogenation catalysts
(transition metal, supported, for fullerenes)
IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-18-8, Ruthenium, uses
RL: CAT (Catalyst use); USES (Uses)
(catalysts from carbon and, for fullerene hydrogenation)
IT 99685-96-8, Fullerene(c60) 115383-22-7, Fullerene(c70)
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrogenation of, supported transition metal catalysts for)

L29 ANSWER 21 OF 21 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1992:570472 HCAPLUS Full-text
DOCUMENT NUMBER: 117:170472
TITLE: Catalytic hydrogenation of olefins and acetylenes over C60Pdn
AUTHOR(S): Nagashima, Hideo; Nakaoka, Akihito; Tajima, Syuji; Saito, Yahachi; Itoh, Kenji
CORPORATE SOURCE: Dep. Mater., Toyohashi Univ. Technol., Toyohashi, 441, Japan
SOURCE: Chemistry Letters (1992), (7), 1361-4
CODEN: CMLTAG; ISSN: 0366-7022
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 117:170472
AB Organopalladium polymers of buckminsterfullerene, C60Pdn, catalyze the hydrogenation of olefins and acetylenes at room temperature under an H atmospheric The catalytic activity is mainly dependent on the C60:Pd ratio in the polymers. Partial hydrogenation of acetylenes is achieved by adding PhCH2NH2 as a cocatalyst.
IT 7440-05-3D, Palladium, fullerene-C60 complexes 99685-96-8D, [5,6]Fullerene-C60-Ih, palladium complexes, polymers 141422-20-4
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for hydrogenation of olefins and acetylenes)
RN 7440-05-3 HCAPLUS
CN Palladium (CA INDEX NAME)

Pd

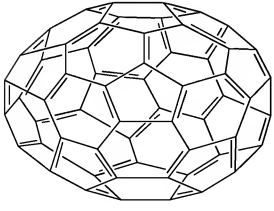
RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



RN 141432-20-4 HCAPLUS
CN Palladium, tris[μ-[(1,2-η:4,5-η)-1,5-diphenyl-1,4-pentadien-3-one]]di-, (all-E)-, polymer with [5,6]fullerene-C60-Ih (9CI) (CA INDEX NAME)

CM 1

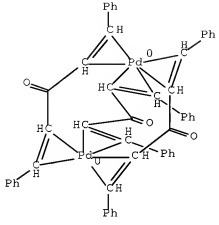
CRN 99685-96-8
CMF C60



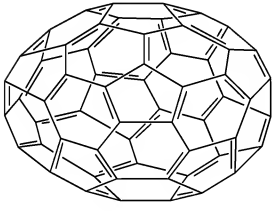
CM 2

CRN 51364-51-3
CMF C51 H42 O3 Pd2

CCI CCS



IT 99685-96-8, Buckminsterfullerene
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with palladium complex)
RN 99685-96-8 HCAPLUS
CN [5,6]Fullerene-C60-Ih (CA INDEX NAME)



CC 21-2 (General Organic Chemistry)
Section cross-reference(s): 78
ST hydrogenation olefin acetylene catalyst;
buckminsterfullerene palladium catalyst
hydrogenation olefin acetylene; fullerene palladium
catalyst hydrogenation olefin acetylene
IT Hydrogenation catalysts
(buckminsterfullerene-palladium polymers, for olefins
and acetylenes)
IT Alkenes, reactions
Alkynes
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrogenation of, buckminsterfullerene-palladium
polymers as catalysts for)
IT 7440-05-3D, Palladium, fullerene-C60 complexes

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     99685-96-8D, [5,6]Fullerene-C60-Ih, palladium
     complexes, polymers 141432-20-4
     RL: CAT (Catalyst use); USES (Uses)
        (catalysts, for hydrogenation of olefins and
        acetylenes)
IT   103-26-4   103-54-8   122-57-6   142-30-3   501-65-5,
     Diphenylacetylene   931-88-4, Cyclooctene   1335-86-0,
     Methylcyclohexene   5923-02-4   60899-97-0
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (hydrogenation of, buckminsterfullerene-palladium
        polymer as catalyst for)
IT   99685-96-8, Buckminsterfullerene
     RL: RCT (Reactant); RACT (Reactant or reagent)
        (reaction of, with palladium complex)


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